

# COMPUTERWORLD

## THE NEWSWEEKLY FOR THE COMPUTER COMMUNITY

Weekly Newspaper

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February 6, 1974

Vol. VIII, No. 6



The Xerox 560 offers up to 128 lines for time-sharing and transaction processing in addition to general-purpose batch and remote batch processing. Disk systems with 100M bytes of storage and 125 m/sec, 1,600 bit/in. tape units are attached.

## Nixon's Privacy Message May Receive Extra Care

By E. Drake Lundell Jr.

Computerworld

WASHINGTON, D.C. — President Nixon last week ordered yet another review of the privacy question in his State of the Union message.

But this "extensive cabinet-level" review of the subject may receive more attention in the coming weeks, either in the Senate, either the National Academy of Sciences report or the Department of Health Education and Welfare report as the president tries to overcome the image of one who cares not enough about the privacy of individuals.

After the mention of the entire subject of privacy in the technological age in a State of the Union message, it is considered significant in itself by many civil libertarians here, although most of them feel the President did not go far enough.

In the 22,000-word message sent to Congress, Nixon was delivering his oral message. Mr. Nixon said that "one of the rights we cherish most in America is the right of privacy."

"With the advance of technology, that right has been increasingly threatened.

## Packet Nets Drop Discount Plan

By Alan Taylor

Special to Computerworld

WASHINGTON, D.C. — Two major packet-switching networks have abandoned plans to provide quantity discounts ranging up to 88% [CW, Jan. 30].

Packet drop was the largest communications line, whose president, Lee Talsbert, said he had not looked at the tariffs from the point of view of the possible unfairness to small computer users which could not qualify for the full discounts. The details of the new tariff have not been made public.

Shortly afterward, Telenet vice-president Stuart Mathison said Telenet was also dropping quantity discounts. He explained that the company had intended to restrict the discount to the individual

(Continued on Page 6)

The problem is not simply one of setting effective curbs on invasions of privacy, or even on some areas it might conflict with national goals or needs, "but where conflicts occur, an intelligent balance must be struck."

"One part of the current problem," Mr. Nixon said, "is that as technology has increased the ability of government and private organizations to gather and disseminate information about individuals, the safeguards needed to protect the privacy of individuals and communications have not kept pace."

(Continued on Page 2)

## Contracts? Write Your Own Fill in the Blanks

By Marcia L. Geyer

Special to Computerworld

Suppose you get outside help for your new order entry system; three months later, your company is sued by the lessor of the system, who claims you are in use, which one of the consultants provided without his firm's or your knowledge.

Did you include the two clauses in the contract which can protect you? Could you hang up in an argument where your consultant claims he has not been paid at his straight rate, or that his firm claims it is entitled to bill for a shift differential because it always bills for a shift differential — with nothing definite in the contract?

Writing your own T & M (time and materials) contract can save you time, money, confusion, aggravation, and potential loss. If you frequently use consulting services as an adjunct to your staff, it even makes sense to write a full-in-the-blanks model contract.

## Xerox 550, 560 Structured Around Multiprocessors

By Vic Farmer  
Of the CW Staff

EL SEGUNDO, Calif. — Xerox has taken a step in the direction of distributed processing (a la Control Data's 3030) with its new multiprocessor architecture in its 550 and 560 mainframes announced last week.

While the 550 is conjunct operating with a new virtual-oriented operating system — Control Program for Real Time (CP/RT) — designed for real-time scientific environments, the 560 is based on memory-oriented, general-purpose mainframe using the CP-V operating system used in the Sigma Series.

The 560 architecture is organized as a series of memory units and processor clusters. Each memory unit contains up to 32K words of storage and provides up to six separate and independent access paths. The processor clusters — up to 22 — are either arithmetic/logic units or multiplexing I/O processors.

Centralized system operations are directed by a system controller processor with a 16-bit microprocessor, a system clock, system control panel, configuration control panel, real-time clocks, operator's console, remote assist facilities and power fail-safe unit. The 550 architecture is similar.

### Optimum Rates?

Through selective configuration of the processing units, the systems can be adapted to the user's applications "to produce optimum data rates and throughput," according to Xerox.

Both the 550 and 560 integrated circuit control memory, memory expansion to 1M bytes, upward compatibility from the Sigma computers, four register blocks, four real-time clocks, 14 internal and up to 48 external priority interrupts, and memory access protection.

There are six classes of error detection for all processors and 13 error detection tests for memory banks.

Both systems provide for connection of a communications line through which hardware and software maintenance specialists at regional offices can control and test the systems. In effect, the regional offices can duplicate the functions of the central computer's console, and can run diagnostic programs, interrogate the system log and help in debugging programs, according to the company.

On the 560, five processing modes can be used concurrently: multiprogrammed batch, remote batch, conversational, time-sharing, real-time and transaction processing. Up to 128 lines can be used for time-sharing and transactional processing while local and remote batch operations are in progress.

The 560 hardware has direct, indirect and indexed addressing, double-precision floating point, decimal arithmetic, 64 general registers in four 16-register blocks with seven index registers for each of the 16 blocks.

Memory cycle time is 645 nsec and the memory employs two-way interleaving. The data rate on the I/O processors is up

(Continued on Page 2)

## New Features Mark Caravan, D.C. First Stop

NEWTON, Mass. — "New data management software developed by the vendors of the new data management systems is significantly changing the entire user interaction and use of the hardware," said Andrew O. Atkinson, director of the Hamilton County (Ohio) Regional Computer Center.

Given the state of this ever-changing situation, Atkinson feels a transfer of information among users is essential.

"We expect to gain a great deal as well as contribute quite a bit," he said, referring to his upcoming participation as a panelist with the Computer Caravan, which is set to open in Washington, D.C., Feb. 20.

Atkinson, who will be addressing the Cincinnati Caravan on data communications equipment selection, feels that as a speaker he will have the opportunity to not only impart his experience, but also

(Continued on Page 2)

### On the Inside

#### Personal Privacy Bill Gets Rolling in California

—Page 6

Cobol Clinic Counterpoint	—Page 20
Communications	21
Computer/Industry	29
Editorial	12
Financial	46
Societies	19
Software/Services	19
Systems/Peripherals	15

# COMPUTERWORLD

THE NEWSLETTER FOR THE COMPUTER COMMUNITY

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# Paper Carries Carpool Idea—Literally

PHOENIX — A free computerized carpool with a different approach has been set up as a service for more than 50,000 employees in over 6,000 businesses covering a 25-square-mile radius in Phoenix's Central Ave. Corridor.

With the help of the project donated by area businessmen, the Central Corridor Carpool is giving the general public the means and opportunity to form its own commuter pool, according to LeRoy Ellison, chairman of the carpool committee.

To set up the project, Ellison and his group of volunteers placed inside the Jan. 16 issue of the *Phoenix Central News*, a free weekly publication which is distributed throughout the area. Included in the paper were maps of the county with residential and business districts divided into 329 numbered areas.

With the help of the carpool, one filled out the card with first initial, last name, the appropriate home and work section numbers from the map and business phone,

and mailed it to the newspaper office.

Processing time on an IBM 360/30 and keypunching have been donated by Data Processing Services, Inc.

"We got 500 responses within a three-day period," said Ellison. "The way it looks right now, this week we'll have about 2,000 to 3,000 names published in it so we're very encouraged."

"There will be a special ID number for each name," Ellison said. "When a person, and others who live and work in his area, have formed a carpool, they can then notify the newspaper and their names will be taken off the master list." The Central Corridor program is designed to get public acceptance of carpooling before expanding valley-wide, Ellison said.

## Xerox CPUs Use Multiprocessing

(Continued from Page 1)

to 1 Mbyte/sec per processor. Up to 16 I/O processors have 16 channels apiece. Up to 8 "rotating memory processors" can control up to 15 devices each.

### New Peripherals

Among the new peripherals offered with the 560 system are a 100-Mbyte disk

pack-type drive and a 2.88M byte fixed-head disk.

Language processors include extended Fortran IV, Basic, APL, Asm, Cobol and RPL.

A typical configuration of the 550 system with 256K bytes of memory, card reader, fixed-head disk, line printer and magnetic tape will sell for \$280,780 or rent for \$7,524/mo on a four-year lease. A 560 with 384K memory, 24 lines, reader, disk drive, printer, punch card reader, four disk units and fixed-head disk will sell for \$723,650 or rent for \$17,028/mo on a four-year lease.

Deliveries are scheduled to begin in the fourth quarter of this year.

## Broad Privacy Review Seen

(Continued from Page 1)

"Another part of the problem is that clear definitions and standards concerning the right of privacy have not been developed and agreed upon," Mr. Nixon said.

He said the cabinet-level review of the matter would move into "both government and industry practices as they relate to privacy" and would look into the conflicts that "arise with the balances that must be struck between legitimate needs for information and the right of privacy."

## DP Aids Ancient Art

NEW YORK — East meets West and old meets new as computers become teaching tools in the art of acupuncture, the ancient Chinese practice of inserting needles in the body to treat ailments.

Computerized mannekins are available with buttons for various internal symptoms. The computer can then analyze symptoms and the location of the organ, the computer lights up, indicating the point where the needle should be inserted, according to Canadian neurosurgeon Dr. K. K. Jain. There are some 1,000 points for the computer to choose from.

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## Vendor Resources, Software Adaptability Important in Package Selection

PRINCETON, N.J.—A source maintenance system is one of the most heavily used software packages a computer installation will ever invest in, according to ADR, the Princeton software house. At most installations, its frequency of use and the potential cost will exceed even that of IBM's compiler and the linkage editor. An equally important consideration, says ADR, is the potential life span of the source maintenance system. Once a computer installation becomes dependent on it, the maintenance package is likely to be an integral part of their resources for years to come, through all kinds of environmental changes and equipment upgrades, such as S/360 to S/370, DOS to OS, and 2314 to 3330 or 3340 discs. The vendor must have the resources and the software must have the versatility required to adapt to these changing conditions.

### New File Design Developed

ADR's source maintenance system, The LIBRARIAN, has undergone evolution-

ary development since the 15-year-old independent software house first introduced it five years ago. Initially it operated under OS and supported tape libraries only; subsequently a DOS version was developed, followed by support for random access disc libraries in both the OS and DOS versions. Recently new storage techniques known as AFO—Advanced File Organization—was incorporated into The LIBRARIAN. This technique is designed to optimize performance when libraries are allocated to the large-capacity 3330 and 3340 discs. AFO, which required over 3 man-years of development, is designed to create a "virtual directory" which automatically increases its capacity as an installation's storage needs grow. The new technique, which is conceptually similar to VSM, obviates the need for reorganization or periodic maintenance of direct access libraries.

### Facilities for Updating and Backup

The LIBRARIAN provides a number of features for programmers, including

updating commands that operate on complete statements or strings of characters within statements. Programs can make temporary or permanent changes to a source program and pass either test or production versions of a program to any of IBM's language translators. Facilities are provided to protect against unauthorized use of data, including a mis-named program, and to prevent reorganization or modification of the same set of changes. All changes successfully applied are summarized and printed in a supplementary report; each statement changed has the date of change permanently associated with it.

The LIBRARIAN provides facilities for the creation of disc libraries and for initial loading of data into these libraries from cards or from libraries supported by other maintenance systems. Manual or automatic back-up and restoration of data is also supported at several levels of security and is available for protection against unauthorized data access or modification. Also supplied with

the system is an interface to IBM's TSO; other ADR software products are equipped with interfaces permitting them to directly access data stored under The LIBRARIAN.

The system is installed by ADR field personnel and is available under monthly or permanent licences which incorporate a 30-day no-obligation acceptance period.

## Context Editing Aids Program Maintenance

PRINCETON, N.J.—The ability to make character string substitutions is an important characteristic of any source program maintenance system, according to ADR. All time sharing systems support this feature, and it is equally important in a source program like The LIBRARIAN. Character string substitution, or context editing as it is sometimes called, involves searching a file for a designated string of characters, and when located, substituting a second character string for the original. Other situations in a record that is context edited are expanded or converted according to the relative length of the two strings involved in the operation.

### Used in Global Operations

Context editing is highly useful when masking global changes to a source program. For example, if a data name in a COBOL program changes, all procedures that reference to that name must be changed. Context editing allows a programmer to replace all occurrences of the old data name with the new name in a single operation. A summary printout of all records modified by this edit function is produced for verification purposes. In addition to its value in program maintenance, context editing can be quite useful when preparing and modifying textual material such as memoranda or narrative descriptions of programs and systems.

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## Source Maintenance System Nears 1200 Installations

PRINCETON, N.J.—ADR reports that their source program maintenance and management system, The LIBRARIAN, is installed at almost 1200 sites throughout the world, making it the most widely used program of its kind. In addition to sites in almost every state in the U.S., including Alaska and Hawaii, The LIBRARIAN is being used abroad. France and Canada top the list of foreign countries with multiple installations. The LIBRARIAN, followed by the Scandinavian countries, Switzerland, and Belgium. The system is also in use at computer installations in Brazil, Japan, and Australia.

### Supports Many Devices

The LIBRARIAN was first introduced by ADR in 1968. It operates on IBM S/360 and S/370 under OS MFT, MVT, VSI, and VSE. The DOS version operates with POWER and GRASP and under DOS/VS. Devices supported include all types of tape drives and 2314, 3330, and the new 3340 disc drives.



**At Least Two to Three Years Away\***

## Treasury May Push Use of EFTS for Social Security

By E. Drake Landell Jr.

CW Washington Bureau

WASHINGTON, D.C. — A Treasury Department task group report will recommend next month that the U.S. make plans to move to the Electronic Funds Transfer System (EFTS) for most Social Security payments.

Sources close to the department, however, indicated the process of moving to direct payment of such funds to a recipient's bank account is still several years away.

"We're definitely looking for the day when all government benefit payments could be handled electronically," one member of the study team revealed, "but it's at least two to three years away."

Asked about reports that the EFTS would be used as early as this March for the Federal Supplemental Security Income program, the official said, "March

1977 would be a more likely time."

Under this system, which would be completely voluntary, a recipient could have the government deposit his check with his local bank electronically instead of receiving a check through the mail, much as many companies do now with payroll checks.

The Social Security official said people entitled to Social Security checks have their checks sent directly to their bank instead of receiving them at home, but individual checks are still made up for each beneficiary, rather than magnetic tapes.

In addition, only about 2,000 of the 25 million Social Security beneficiaries have magnetic tapes for the system, which he admitted had been opposed by the Social Security Administration.

But the Treasury, however, is pushing the program and the soon-to-be-released report will back the direct payment

mechanism heavily, sources here have said.

The most probable course of action — if the Treasury's recommendations are followed — would be to try to expand the

since checks would still be made up for each individual in the program.

"But when we get three million or so in the program of direct mailing to banks, then we can start the electronic electronic transfer system" where the Treasury Department would not make up individual checks but would rather send magnetic tapes to clearing banks for crediting to individual accounts in other banks, the officials indicated.

The Treasury officials noted there are still many problems with EFTS that would have to be solved before the government could start such a program, but they indicated their forthcoming report suggests solutions to some of the major stumbling blocks.

The system would probably be first implemented for Social Security checks, and that applied to other benefit programs of the government.

## Greendale Finds

### Old Way Is Best Way

GREENDALE, Wis. — In a switch on a computerized payroll system, the village found the old manual process was better.

The move was made in an effort to eventually save about \$1,200/yr, according to Harold Lutz, Greendale's clerk-treasurer.

Lutz said the village had been paying

about \$1,500/yr for a standard payroll

service from Midland National Bank in Milwaukee, which ran it on Burroughs 3500. The system had been in operation

for about three years, Lutz said. The manual system has been in operation

since the village was incorporated three years ago.

"It doesn't look like it will take us any more time to do it manually, for the amount of input our program required," Lutz said. "We had so many variables that required our input that we were spending an awful lot of clerical time just feeding a computer. Now we can just pay \$1,200 on top of it. We imagine that within just an hour or two more a week, we'll be able to do the same thing without spending \$1,200/yr for it," he said.

The initial cost of the manual system will be \$476, which includes one year's supply of checks and two years of record supplies. Thereafter, supplies will cost about \$100/yr.

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HOW PRODUCTIVE ARE YOUR PEOPLE DOLLARS?

## Passes Assembly 71-0

# Calif. Privacy Bill Would Restrict Data Use, Transfer

By Marvin Smalheiser

SACRAMENTO, Calif. — A personal privacy bill that could significantly impact the use and transfer of personal data in California and serve as a model for other states has passed the State Assembly by a vote of 71-0. It now goes to a Senate committee.

The bill would restrict the use and transfer of personal data used by computers in automated personal data systems.

It would impose fines, imprisonment and civil penalties on operators of computer systems for unauthorized invasion of an individual's privacy, improper dissemination of personal information or failure to file a public declaration of the existence and nature of a personal data record system.

Representatives of the Western Electronic Manufacturers Association's (Wema) Computer Systems Group (CSG) met recently to discuss how the bill could be amended to prevent potentially serious operational problems.

Bryan Wilkinson, president of the Los Angeles Chapter of the Data Processing Manufacturers Association (DMPA) met with the Wema group and sent a letter to Los Angeles area DMPA groups about critical provisions of the bill.

The Association of Data Center Owners and Managers (Adcom) in Los Angeles is also studying the measure.

The bill is sponsored by Assemblymen William T. Bagley (R-San Rafael) and Mike Antonovich (R-Glendale). It died in getting out of committee in the Assembly and out of the Assembly. Its fate in the Senate is problematical, depending on how the bill is amended.

But Bagley, the original sponsor of the bill, is calling on his colleagues to amend it to pass it in a workable form — faithful to the original intent.

James Case of Dylaskor Computer Systems, chairman of Wema's CSG, said the group agrees with the intent of the bill.

### Objections to Bill

But, he added, it does not, in a practical way, differentiate between hardware and software systems.

"We will recommend a change in the wording or clarification so we can live with the intent of the legislation," he said.

Wilkinson said there would be problems in transferring data out of state because the bill prevents identifiable personal data from being transferred to another system without ensuring that equivalent security is in effect.

This, he said, could create a problem for the transfer of deductions and other tax information from one state to another. Ed Eisdale, Wema vice-president, said the bill makes no distinction between

computer files developed by employers to assist them with in-house operations and those files developed by companies in the sale of data.

The overall bill, he said, should be more flexible.

"We have no basic objection" if it is limited to where the above are.

Mike Antonovich, executive director of the state intergovernmental board on electronic data processing, said the board has reviewed and endorsed the bill.

The board represents state, county, city and educational segments of the state government.

### What the Bill Requires

The bill would make some of the following requirements of operators of automated personal data systems:

- Inform, in writing, every individual asked to supply data whether he is legally entitled to do so.

- Assure, in writing, that no use of the data is made beyond the stated purpose of the system.

- Allow an individual to contest the accuracy of the data concerning him.

- Make available to the state Department of Consumer Affairs each year a public notice about the system and actions taken to safeguard the data.

- Make no transfer of individually identifiable data to another system without prior consent from the individual

concerned.

- Take reasonable precautions to protect data from unauthorized use.

- Make available data in the system with such accuracy as to fairly reflect an individual's current qualifications and characteristics.

- Penalties include a maximum of \$10,000 for failure to file the required annual public notice with the Department of Consumer Affairs.

Violations of other sections of the act constitute a misdemeanor, punishable by a fine of not more than \$500 or imprisonment of not more than six months or both.

There are also provisions for injunctive relief.

### Opposition to Bill

Opposition to the bill has come from the California Bankers Association, the Association of California Life Insurance Companies, TRW Credit Data Corp., the state Department of Motor Vehicles and the Associated Credit Bureaus of California.

A spokesman for Bagley's office said "A person is too anxious to stand up and be counted on this one."

The bill, he said, had a 70% chance of being killed in the Senate as it now reads but it depends on the committee to which it is assigned.

## Packet Switching, Boon or Bane?—Part II

# Satellite Systems Endangered?

By Alan Taylor

Special to Computerworld

Although the currently proposed packet-switched networks will be char-

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ing their customers the same rates regardless of the distance their data is sent, the costs of the services to the network do in fact depend on distance. In effect, this means that customers who do not make much use of long-distance cables will be overcharged, while heavy cable users will be undercharged.

The danger in allowing this type of tariff may well be to discourage the development of truly distance-independent communications systems, such as satellite systems.

With satellites, there is no real destination for a signal or a message beamed up to it. The data is broadcast by the satellite to all earth stations in the network. All of the stations pick up the signal and examine it to see if they are supposed to transmit it to another station in the network. The cost of transmitting by satellite from station A to station B, therefore, is independent of the distance between the stations and is related only to the cost of the stations and satellite system.

Given enough stations, few computer users would be more than a local telephone call away from one of the stations, so any satellite-supported communications system which relied upon local telephone links and satellite service would truly be distance-independent except within the local area.

At present, only one of the major packet companies — Telenet — has any plans for satellite communications, and then only four stations in the 48 continental states and Canada. The cost of a satellite for a user, depending upon geography can easily require the use of 1,000 miles of terrestrial channels, which do have a fundamental distance-related cost.

But the distance-independent charges proposed by the packet net encourage unnecessary and inefficient data transmission at the cost of the smaller users of terrestrial cables. The requirement for multiple paths (for safety purposes), which is sometimes used as a justification of these charges, seems to have no real validity, as similar paths on a telephone network are not necessary more than about 50% longer. (There is no need for most of the messages between Boston and Washington

Kind of Plan	Old Tariff	New Tariff	Change
Per 1000 Packets	\$4.00	\$1.25	Cut 69%
Night Allowance	50% off	About 40% off	Decreased About 20%
Computer Connection	Paid by Telenet	Paid by Customer	Additional Charge
Terminal Connection	Paid by Customer	Paid by Customer	No Change
Quantity Discount	Up to 88%	Up to 88%	Additional Charge

Comparison of Telenet's Old and New Proposed Tariffs

to be routed via Los Angeles, even if New York is temporarily closed down, for instance. They can be sent via Philadelphia instead.)

Currently, however, there is no indication that the packet-switched networks are prepared to abandon the concept of charging the same for a call across town as for a call to a station in the country. Telenet's vice-president, Stuart Hartman, claims the reduction would only be about 10% to 15% at most and therefore is unimportant.

### Nets Drop Discount

(Continued from Page 1)

computer, so that a dual computer complex would only get a discount on the amount sent out by each computer separately. "We found it wasn't practical," he said.

The new Telenet schedule also provides uniform treatment of computers and terminals, which had previously been treated differently.

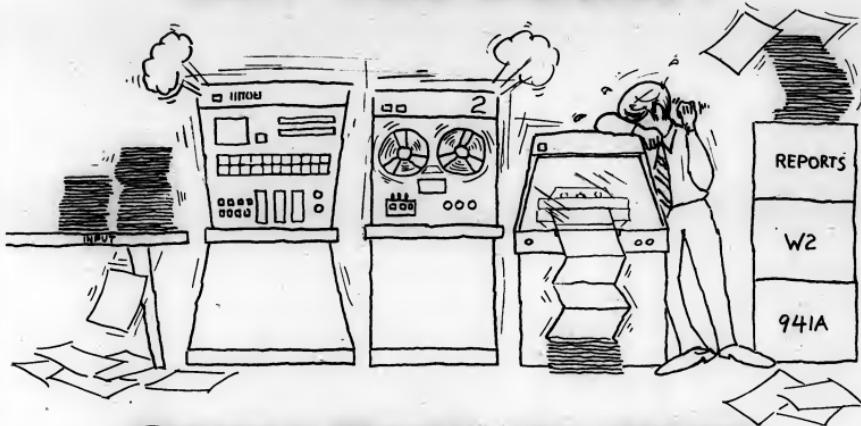
## 360 Systems dpf



DPF, a New York Stock Exchange listed Company and one of the nation's largest computer lessors, owns and has arranged leases on over a quarter billion dollars worth of S/360 and S/370 computers.

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- 9:30 - 10:15 Panel Discussion
- 10:30 - 11:45 Concurrent Workshops
- 12:00 - 1:00 Luncheon
- 1:15 - 2:30 Workshops

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Please register me for the forum(s) indicated. I understand that this includes luncheon, workbook and admision to all three days of the Exposition. My check or purchase order is enclosed.

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## Protection Needs Depend On System's Complexity

ED security is a complex, interactive mix of physical, procedural and data protection, with a healthy amount of backup and audit.

It is given an overall look at the security responsibility of users and vendors, define the threats to security and analyze in detail protective measures to minimize security risks.

It is generally agreed that some form of security is needed in every installation and that a mix of safeguards is probably a good approach. But the amount of protection needed depends on the sensitivity of the data, reliability of users and complexity of the system.

Let's discuss the sensitivity approach first. There is a major difference between an installation processing a top secret war plan and one processing policy records belonging to insured people. In general, one does not need to consider commercial installations as if they were military camps.

Also, there is a difference in the amount of protection one would put into a computer in-

stallation located in the middle of the Philadelphia ghetto as contrasted with a conservative New England town.

However, the major factor in providing protection is that of complexity. In today's environment computers are sharing data, programs and systems. They are processing many jobs at once. The greater the extent of resource sharing, the greater the need for protection.

There is also a difference in protection requirements depending upon how much capability is



### Part V How Much Protection?

given the user. If the user can only interface with the data by means of a predefined, controlled access inquiry system, there is less of a problem than if the user were able to write and execute his own programs at a terminal.

There are other factors. Industry in general is integrating more and more applications. More departments are sharing data. The owner of the data has the right to be concerned about its integrity and its disclosure. The computer is even more critical to corporate and institutional health.

There are a couple of security extremes that apply to protection of the computer. They are useful in viewing almost any aspect of this complex and fascinating subject.

### Types of Systems

Local Access BATCH	Remote Access BATCH	Local Access MULTI- PROGRAM	Remote Access MULTI- PROGRAM	Remote Access TIME-SHARED
-----------------------	------------------------	-----------------------------------	------------------------------------	------------------------------

### Difficulty and Complexity of Security Controls

As the complexity of the system increases, so does the amount of control needed to adequately secure the operation.

First of all, there is no such thing as 100% security. Many people will claim they want an all or nothing approach to security, and that a half-way type of security is worthless.

Part VI will look at the risk management approach to securing operations - a systematic method for identifying and reducing security threats.

Part VII will look at the security operations of the security operations, General Electric, Information Services Division, Bethesda, Md.

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# Who can sell computers in Japan?

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In Japanese it's called Shukan Computer, and in English, it means "Computer Week." It is the most popular magazine in Japan and is an excellent vehicle for selling ED/P products and services in the large and expanding Japanese ED/P market. Here are some of the reasons why:

Shukan Computer is a joint venture of Computerworld and Dentsu Publishing Company. It is the largest public relations firm in Japan. With the combined resources of the two companies, Shukan has the largest news gathering organization of its kind in the world.

Shukan Computer is the only newsweekly for the fast-growing Japanese computer industry.

It is read by 25,000, divided about 80% in end-users and 20% to the computer industry. Circulation development methods currently under way are the same as those which gave Computerworld the most rapid circulation growth in less than a year.

Shukan is one of the most successful and fastest growing ED/P market. The Japanese Ministry of International Trade and Industry (MITI) has made the following 1976 forecast: 35,000 general-purpose systems installed, up 30% from 27,000 in 1975; 100,000 microprocessors installed, up 67% in 1975; 100,000 terminal units installed, up from 1,000 in 1975.

Is this growth likely? The latest census of general-purpose systems revealed that there were 14,800 systems installed as of September 1972, a one-year increase of 23.1% and 9,911 million installed. 50% of these new systems were American made.

It is true that there are import restrictions. But Japanese vendors and users get permission to import almost anything they want and need. As a result, 1975 imports were over \$360 million.

Advertising in Shukan is easy. With Computerworld representatives to assist you, it's easy to place space in Shukan. For a small fee, we translate and type-set your ad from English to Japanese. To get more facts, just send in the coupon.

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**COMPUTERWORLD**

## Sketches Made From Photos

# Anyone Can Draw 'Whatisface'

By Toni Wiseman

Of the CW Staff

TOLEDO, Ohio — "I wanted to make a computer system of artificial intelligence where the computer is in a sense augmenting a person's natural talents."

That is why Ohio State University doctoral candidate Mark L. Gillenson designed "Whatisface," a computerized facial computer.

"Whatisface" enables a non-artist to make a sketch of a face from a photograph in front of him.

### 'Home-Grown' Language

The program is written in a Graphic Symbiosis System (Grass), a "home-grown" higher-level interactive graphics language, which in turn is written in PDP/11 Assembler, Gillenson said.

"Whatisface" consists of 170 routines in Grass. Each routine consists of anywhere from five to 70 statements. Some routines are nested sometimes to a depth of as much as 10, according to Gillenson.

The task of sketching the face is split into four subtasks — the machine handles two of those and the operator handles the other.

"The machine provides a heuristic strategy on how to build a face with prestored facial features," Gillenson said.

"The two operator tasks consist of making visual decisions in terms of manipulating what we've actually drawn with what's on the screen," he said, "and the actual physical ability to manipulate analog dials to stretch things and move things around on the screen when the strategy tells you to."

The artist's "canvas" is a Vector General scope. The program begins by flashing an average male Caucasian face, mathematically calculated from 256 photographs, onto the scope.

The system then leads the operator through a variety of op-

erations ranging from an aging process to a stretching process to obtain the gross shape of the face.

"Then you can go into a manual mode," Gillenson said, "using our analog devices, which include binary function switches and dials, for fine adjustments, such as warping a hairstyle."

This is followed by a hierarchical manipulation routine, which, he said, has some elements of the concept of picture grammar. Then each feature (eyes, nose, hair, lips, etc.) is

retained in sequence, and tailored to the operator's specifications.

The final step entails making the hair straight, curly or wavy and shading in the eyebrows and eyes.

The possibilities for the system in police work are readily apparent and Gillenson has already tried it in touch with police agencies; however, he cautions that at present it is not set up as a police tool.

"At this point the sorts of



The sketch on the left was made from the photograph on the right using the "Whatisface" system.

memories, the questions can't be quite as detailed. And various parts of the strategy would have to be severely modified," he concluded.

## To enter data is human. To ENTREX it, divine.



**ASSOCIATION FOR  
EDUCATIONAL DATA  
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**AN INTERNATIONAL  
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**12th ANNUAL  
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201 Sunrise Highway  
Patchogue, N.Y. 11772  
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## Finding the Optimum Work Schedule — Part II

# Operations Staff Attitude Key to Overall Success

By Jonnie Sears Jr.

Special to Computerworld

Most computer operation inefficiencies are caused by poor scheduling and underutilization of the hardware. It can be a bottleneck or an efficient production line, assembling a center's total EDP effort into a tangible product.

An experienced operator can usually help pinpoint problems and minimize the tendency of a supplier to pass the buck. Obviously, the attitude of our staff is

a major ingredient to our overall proficiency and continued growth.

In Cincinnati the Regional Computer Center's costs are low, and we are getting better utilization of our equipment. We have been able to decrease our hourly hardware cost by operating seven days per week, around the clock, because our hardware rental agreements call for a fixed monthly fee regardless of the number of hours we operate our systems. Usually we schedule long print

The rising cost of data processing is creating revolutionary thinking for most DPs, managers. As the cost for equipment, personnel and supplies continues to increase, they must constantly devise means of getting more utilization from their equipment. This two-part series details how the center succeeded by converting its work schedule.

jobs and special test shots for the weekends. This allows our operation section to provide

better turnarounds on weekdays, as well as alleviates a lot of the scheduling conflicts that would normally occur during the course of a week.

Each of our four teams has a complement of five persons — three computer operators, a lead operator and shift supervisor — responsible for his team's performance as well as the computer center's overall security during non-prime time. Our night operators are paid a shift differential rate of 20 cent/hr. There is never any need for overtime

because we have an adequate complement on duty at all times.

Holidays are handled quite easily with no disruption to the schedule. If a holiday falls on a person's scheduled off day, he receives an extra day off at a later date. Those who work everyday fall on a holiday receive 16 hours extra pay for working.

Over the course of a year, the holidays usually fall on each cycle about 50-50. Normally the workload for a holiday is very light, thereby allowing us to decrease our work complement to three people instead of five.

### Team Balance

A balance of skill and experience is maintained on each team with a continuous training and evaluation program. We found that certain computer operators, scheduled to be run biweekly, would automatically be run by the same team. This, of course, provided as many good features as unwanted problems (like specialization). To offset this, we have rotated the experienced operators from one team to another. However, the switching has always occurred between either the two night teams or the two day teams to minimize disruption to personal plans.

We have been able to enhance the overall proficiency of our computer operation staff by the following methods:

- In providing a work schedule acceptable to the operator as well as management, we have increased the morale and performance of our staff.

Acceptance has been fantastic. We only lost one person when we made the initial switch.

- We promote professional attitudes by providing career opportunities within the operation section.

**Jonnie Sears Jr.** is assistant supervisor for operations for the Regional Computer Center in Cincinnati, Ohio.

The big difference is pre-processing in System 480's batch edit and output edit software — simultaneous with data entry.

No other key-to-disk system gives you so much control over the quality of your output, so much independence from the main frame, so much versatility in managing the data while you have it.

Files can be sorted, merged, and collated. Error message files can be created. Partial outputs can be examined. Virtually anything you could do in a tab room you can do on System 480, only much faster and much quieter.

As for data entry, both System 480 and our lower priced System 280 are unsurpassed in programmed helpfulness to the operator:

Formatted, full record display; interactive English language messages; over 40 checks, flags, tables, and other software features (including our exclusive HELP button) for easy, error-free entry. Operators and supervisors love the ENTREX key station.

### Highlights of System 480

Key stations	Up to 32
	029 or typewriter
Display	480 characters
Disk	2.4MB bytes or more
Tape unit	7 or 9 track, 565, 800, or 1600 bpi 10.5-in. 2400 ft.

### Highlights of System 280

Key stations	Up to 12
	029 or typewriter
Display	360 characters
Disk	1.8MB bytes or more
Tape unit	9 track, 800 or 1600 bpi 8.5-in. 1200 ft.

While you're thinking about clean data, we suggest that you validate our batch of claims. A contact with somebody you know at one of the more than 200 ENTREX installations would be human. A call to one of our representatives would be divine. ENTREX, Inc., 168 Middlesex Turnpike, Burlington, Mass. 01803. (617) 273-0480.

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**Editorial****Good News Week**

Aside from being victimized by the energy crisis, computers are doing quite a bit for the public good.

Much has been written about problems computer users could experience during the power brownouts they are now experiencing because of fuel shortages.

Even more has been written about the merits of carpool, with data bases searched by computers.

A vendor is now providing a computer program, free of charge, to any organization that wishes to use it to implement a carpool.

Burroughs says the program runs in only 20K bytes of memory, is written in ANS Cobol, and can run on any system with a standard Cobol compiler.

After weeks and weeks of carpool stories and, to be sure, of municipalities and organizations reinventing carpool programs, hopefully this plan will put an end to much of the duplication (and therefore to much of the publicity) surrounding these efforts.

Equally impressive, and possibly more significant, is the Fuel Users' Emergency Line, appropriately nicknamed "Fuel," now in use in Pennsylvania.

Believed to be the country's first computer-assisted emergency allocation system, Fuel helps state officials react to emergency situations concerning oil allocation.

And, like the carpool program, the Fuel software is available to agencies in other states.

After all the negative publicity about data banks and invasions of privacy, blackouts and brownouts, real or contrived energy shortages, it's nice to hear a little good news, too.



*Migdi! What If They Learn How to Do Payroll?*

**Letters to the Editor****Artificial Intelligence — A Comparative Look**

I like to think of artificial intelligence in a couple of ways: (1) *As affording a comparison with human intelligence*, which is as instructive as most comparative studies; and (2) *As a discipline in itself*, which is as instructive as time goes on and the theory is taken seriously. To me the comparison is chiefly useful because of questions it raises

about human intelligence in a new way.

e.g. Why is the human capacity for quick recognition and rich association so much greater than that of the computer? Why is the capacity as yet developing for dealing carefully with complex logic in statements. (To start with, the answer is evolutionary, but today's complexity demands new evolution, and we favor new neural abilities).

(2) *As covering that area of information research where human successes are as yet impressive compared with the machine's*. We must not forget that character recognition, checkers playing, chess, decision-making, etc. were "artificial intelligence" until they were shown feasible. Anything successful and understood gets immediately relegated out of the field. Should anyone be cursed for this? I don't think so.

A.I. researchers do share a temperamental optimism or foolhardiness, but their life is no duller than that of most researchers, I suspect. And, if they can find a grant!

The numbers attending each successive international joint conference on A.I. testify to the great challenge the topic seems to arouse. And I must accept some responsibility for encouraging all that.

Ois Minot

Lexington, Mass.

**Building' vs 'Blasting'**  
Alan Taylor, C.W.'s Ralph Nader for Cobol, rates an "E" for effort, but "F" for facts.

For example, long before Alan began his "Blasting" (C.W. Jan. 27, 1973) for school standardization deregulation, Grace at the Pentagon was busy building the structure and gathering the parts that became the Ains standard Cobol compiler tests Alan joyfully presented (C.W. Jan. 16, 1974) to a good staff for review.

Unbeknownst to blast-first-and-ask-questions-ster Taylor, Hopper was doing the good work Taylor never does by blasting. Taylor approaches problems positively and persuasively.

She's a builder. When Taylor blasts, there's a growing tendency in these parts to turn him out. We hope he's not too old to change his ways. Active USNR Captain Grace Hopper, current Pentagon kick, is doing this is promoting a standard Cobol language sub-set for minicomputers.

Richard M. Petersen.

Scottsdale, Ariz.  
"Standards" is a very tricky word. Grace is doing tests for Cobol compilers, not A.I. standard tests and not tests for the A.I.-standard-Cobol. And she is promoting a subset of the A.I.-standard-Cobol, not a standard subset. HG

**...by the Numbers**

If the news media are to be believed, a principal reason for the inability of the government to provide adequate direction and leadership during the apparent fuel oil shortage is lack of information.

Taking past practice by government and industry as ample precedent, we may have an available solution:

Assign a Social Security Number to each fuel oil storage tank!

Monroe Fein

Pacific Palisades, Calif.

**Herb Grossch For...**  
I am writing to you both to cast my vote for Herb Grossch in the event it comes down to vote between him and Tom W.L. Thomson. I am particularly irritated by the letter from Thomson. I am a professional in the DP field and I do not want the W.L. Thomsons deciding what I can and cannot understand.

Thomson seems to think that Grossch is unprofessional, whatever that means. Well, I disagree with Thomson and support the continuing publication of whatever Grossch has to say.

Los Angeles, Calif.

**...And Against**  
to the editor in the Jan. 16 issue concerning Herb Grossch:

AMEN!

Dave Tierney

Boston, Mass.

**A New Kind of User Group — I**

Let me carry you back to the early days of Peter Principle, Share and Guide developed under the leadership of Tom Watson, Bill Hopper, and the National Security (shhh!) Agency. They knew more about how to organize a 701 or 704 shop than anyone in IBM, even Cuthbert Hurd; when Fougasse was young, and even Endicott was only mid-age. Simpler, happier times, managers armed with open minds, closed shops, whether to teach Fortran from their customers, how to steal programmers from each other, IBM was the given, the only game in town — oh, and in New Mexico someone had invented an 1130. But floating point, and LEO was keeping track of sausage rolls in London, but mainstream for aerospace and Generous Electric was IBM.

We will see something like that in the late fifth generation, say 1979. There are 20 years we have ripped past; no customer, not even the National Security, which is still the Agency, will know as much as IBM, and Share and Guide will have many thousands of member installations. But in the sense that, again, IBM will be the only game in town, history will repeat itself. It will be IBM against the customers, the users, the CIOs, the managers, the antelope of Lilliputians, a nervous elephant dancing amid a horde of skittish mice.

Back in the Fifties, the mice organized. They realized IBM was uncertain, realized they represented the future — the cloudy, multi-hole, multi-hole — and Tom Watson, and his father, realized their professional as well as commercial leverage. That was born the 709; thus was born the first operating system (at least in name): SOS, the Share Operating System.

It was a flacc.

IBM did not resist, did not sabotage, did not snarl out the project. But Golliher could not respond eagerly and flexibly to a non-Watsonian concept; did not want to.

Partly as a result, partly because of the Peter Principle, Share and Guide developed under the leadership of Tom Watson, Bill Hopper, and the National Security (shhh!) Agency. They knew more about how to organize a 701 or 704 shop than anyone in IBM, even Cuthbert Hurd; when Fougasse was young, and even Endicott was only mid-age. Simpler, happier times, managers armed with open minds, closed shops, whether to teach Fortran from their customers, how to steal programmers from each other, IBM was the given, the only game in town — oh, and in New Mexico someone had invented an 1130. But floating point, and LEO was keeping track of sausage rolls in London, but mainstream for aerospace and Generous Electric was IBM.

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This is the first of a series of columns. The next will describe the objectives of the proposed organization.

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*Herb Grossch*

## Recruiting DP Personnel —Part II

# Proper Screening, Interviewing Filter Candidates

By Lou Fried

Special to Computerworld  
Once a pool of potential candidates for employment has been established, the firm must screen the applicants before setting up depth interviews.

If the organization has a personnel department, it should be used. Not just because the personnel department objects if it is bypassed, but because it can provide a more objective approach in the recruiting process, including preliminary screening.

The personnel recruiter who is assigned the preliminary screening should be careful in performing this task. Make sure he knows exactly what he is looking for. He should not be expected to do any technical screening unless he himself has a technical background.

The list of requirements or

"preliminary screening tests" should be set so as to accomplish the real purpose. For example, if the purpose of preliminary screening is to eliminate all but a specific type of applicant, then one of these requirements passing the preliminary screening will require final review. On the other hand, if several openings exist at various levels the screening level should be set in broader terms and the resumes classified into specific ranges.

One danger in setting too tight a screening level is excluding the possibility of serendipitously locating a talent you might be able to use in another position.

### Give Tests Fairly

If preemployment testing is used there are certain ground rules to follow. Preemployment

tests must be validated by the Equal Employment Opportunity Commission and the same test should be given to all applicants for a particular position.

Tests should be valid. Finding and hiring the right people for DP jobs is one of management's most important jobs. This review looks at ways to find, screen and interview candidates, make the final offer and introduce the new employee to the organization.

technical ability required for the position. (This obviously could include even a vocabulary test if it is required for the position.) So-called "personality tests" and the like are coming under increasing fire for being ethically biased.

All test results and interview

records should be retained for several months after the interview.

Many employers are concerned about potential problems with the EEOC. The easiest way to avoid these problems is to avoid discrimination or to prove absence of discrimination in testing and interviewing practices and to develop a history of equal employment practice. It should be remembered that testing alone is not a defensible method of selection.

Final screening of applicants should be done by the person to whom the employee will report. Frequently it is beneficial to have two equally qualified persons review the same set of resumes to determine what may have been missed.

Interviewing is a very subjective process. Many books have

been written on the subject but it still remains a mystery to many managers. As a result, they haphazardly develop approaches which frequently do not accomplish the purpose of selecting the most desirable applicant. Even considering that interviews may be applied with the individual manager's distinctive flair, some general rules should be followed.

The interviewer should prepare in advance a list of questions that will aid in determining whether the applicant is qualified for the position.

If several people are interviewed for the position, a written record of the quality of their responses and the interviewer's general impression should be kept for comparative analysis before final selection.

The applicant should be provided with clear directions for getting to the interviewer's office and should be encouraged to meet the applicant. A prospective employee's first impressions may determine whether he is willing to work for the organization. A specific time should be set aside for the interview, and it should be conducted in an environment where there will be no interruptions or disturbances.

If the applicant is qualified and is to be seriously considered, he should be told what the job, who he will report to, what he will be expected to do and how his performance will be measured. He should also be shown the facility where he will work and any questions he may have should be answered.

Only in rare circumstances should the applicant be made an immediate offer. If there is serious interest, the applicant should be informed by the personnel department about the company's benefits and the employee benefits available.

Part III discusses making the offer and introducing the new employee to the organization.

Lou Fried is vice-president, MIS, Title Insurance & Trust Co., Los Angeles.

# No Second Chance to Make Right Decision

By Miles Benson

Special to Computerworld  
Once upon a time there was a budget aerospace project with a problem. The problem, it simply stated, was this: For its budgeted avionics computer, should the project define and build a special-purpose computer, or use a hardened and ruggedized but otherwise identical version of a commercially-available computer?

The special-purpose people said, "Our project is unique and we must define a computer tailored to our unique requirements."

The ruggedized commercial people said, "There's nothing so unique in our project that it couldn't be handled by a general-purpose, commercial machine much more cheaply." Well, the lead people on the budget aerospace project watched their heads over the problem and finally decided that their project really was unique — even uniquely unique — and so they contracted with a special-purpose computer specialist to buy a (you guessed it) special-purpose computer.

Some of the ruggedized commercial people were a bit bitter over that. You see, during all that head scratching, the project team had recruited a special-purpose computer specialist and relied heavily on him for their decision. In fact, and this does seem incredible in retrospect, that specialist even helped write the requirements specification.

tion which defined the computer the project needed. It was sort of like asking General Motors to help you define the requirements for your next sport car, while promising that the decision was not at all necessarily to buy a Corvette.

But once the decision was made to get a Corvette — er, a

special-purpose computer — the ruggedized commercial people decided to be good losers and set about building a Corvette.

And work it did. Oh, it was more complicated than it might have been. Like it was necessary to build a simulator for the special-purpose computer in order to work out the system parameters before the special-purpose hardware was delivered. And it was necessary for programmers to learn to write code for the special-purpose machine, even though they already knew how to write code for the commercial computer they might have used.

And so he wrote to this aerospace project's management and said, "How much money can we save now if we use the ruggedized commercial approach?"

But good sports will be good sports. The ruggedized commercial people worked as hard as anyone to make the project a success. And they succeeded.

Still, in the backs of their minds they remembered the economics they might have had.

They spent money on the simu-

lator, and the retraining and paid the learning curve price, and wished that all of that had not been necessary.

### Government Wonders

The story is not over, however. It came to pass that the people at the highest levels of government decided to spend a lot of money for what was work in a large building called the "Octagon," began wondering about all the money they had said people could spend things like aerospace projects. And the more they thought about it, the more concerned they got.

Somebody in the Octagon discovered, while looking through some dusty files, the ruggedized commercial people's proposal for said money. "Why not," said and uttered to himself, "find out whether we can still save all that money."

And so he wrote to this aerospace project's management and said, "How much money can we save now if we use the ruggedized commercial approach?"

The ruggedized commercial people were ecstatic. Their position appeared to be vindicated. They whipped out their collective side rules and began an analysis from a new point of view of the cost savings.

But then the heavy sank. The retraining money had been spent. The retraining was complete. The learning curve price had been paid. The code for the special-purpose computer was, in fact, nearly all built.

There was no money whatever to be saved now. In fact, the more he thought about it, the more he concluded, the more concerned he got.

And so he wrote to this aerospace project's management and said, "How much money can we save now if we use the ruggedized commercial approach?"

The moral of this story is somewhat obscure. Perhaps it could be, "If at first you don't succeed, you might as well forget it."

## The Project That Failed

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# Is Blue Shield's Claim Form System A Problem of Ignorance Or Arrogance?

About a year ago Paul C. Boatley, Blue Shield's vice-president of claims administration, said Blue Shield's new system of claims processing would be a single "explanation of benefits paid and rejected" — a "simple" system to implement. His comments came after the then

system had been criticized in the Taylor Report (CW, June 7, 1973, 1972). At the time, I asked to see the draft forms to review them, but was refused.

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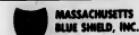
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Tiny Type Size –  
Unique type is only 2  
point.

Wrong Name – No ex-  
planation of action is  
given, just a statement.



(THIS IS NOT A BILL)

**EXPLANATION OF BLUE SHIELD ACTION**

FOR THE CLAIM RECEIVED ON 11-20-73

This is a statement of the action taken on your  
Blue Shield Claim.

PLEASE ENCLOSE THIS FORM WHEN MAKING INQUIRIES

SERVICES PROVIDED BY		BENEFICIARY PAID TO	
SURGICAL SPECIALISTS INC		SURGICAL SPECIALISTS INC	
NO. 04 PLATE TYPE	CODE	DEPT.	CHARGES
1022730HSU	91573 064008		2000
			1000
			1000
			22*
			1000
			81
TOTALS		2000	1000
FR045 80		1000	1000
		BLUE SHIELD PAYMENT	PATIENT BALANCE

Unexplained Codes

Unexplained Numbers

Unnecessarily Tiny Type

ALAN TAYLOR  
633 CENTRAL ST  
FRAMINGHAM MA 01701

**THIS IS NOT  
A BILL**

00303/00476

The new Blue Shield claim form illustrates a DP problem. Can you spot the unexplained error? (Note: Approximately four inches of white space on the original form was eliminated in this reproduction.)

<b>WORLDCOM</b>	
TERMINALS, CRT'S & PRINTERS	
T1725s	Dig-Log 209, 33
Trans. 32, 33, 35, 38	Business Timesharing
MAGNETIC TAPE UNITS	
Teletech 4100	SYNCHRONOUS 30 COPS
Cassette Storage System	132 printer print
Position/Impact Terminals	
Plus—WORLDCOM stocks a full line of telephone supplies and accessory items	
sound enclosures, motion carts, stands, etc.	
Need communications? Call the professionals—where quality is first priority	
Dallas • Los Angeles • San Francisco • Washington D.C.	
Dealers & Distributors in Communications and Timesharing Terminals	

## Is Blue Shield Ignorant or Arrogant?

(Continued from Page 13)

to A void Codes – There is plenty of room on the form for fuller (over two characters) explanations of type of service and place of service. These could be brought into the line item in an easier-to-read manner.

Failure to Use Nearest Available Space for Explaining Codes – The Bill of Lading's Balance column is one of only two versions, and is explained on the reverse of the form. There is room to print two additional lines on the front of the form.

For the most part, these problems are matters of poor design. What has been quite commendable, however, is the ignorance, or else regrettably arrogant – is that the "explanation

of benefits paid and rejected" promised by Boatley is simply not present at all.

Factually, the claim nowhere specifies (or explains) for what the doctor claimed \$20. Was it for pulling a tooth? Or for giving an injection? The form doesn't say. The patient has no idea whether he actually received the treatment claimed.

Moreover, the policyholder cannot know whether the insurance company is paying the approved scheduled rate for the service concerned, again because the form gives no explanation. The form gives no explanation of the amount Blue Shield paid. The so-called balance (here, a surcharge of 100%) that is pro-

duced is simply a difference between a claim and payment. This could well involve a mistake (say between \$20 and \$2,000).

Why a policyholder is told to pay an amount when a doctor may have overbilled is this: Blue Shield is being paid. It should be beyond Blue Shield also.

In regards to the other error that can be seen on the form, I leave that for the reader to find. It is for a bid to be ENTITLED located and differentially missing! Good hunting!

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# NewSystem 370's Attractive Delivery Schedules.

For Sale or Lease. Terms: From 3 Years.  
ITC Available. Contact Ed Tibbitts or  
Dick Campbell at (315) 474-5776

SYRACUSE, N.Y. Midtown Plaza 13210 (315) 474-5776



## Delivery Schedules

370/158 Model J, J1 or K	
#1 Delivery	3/12/74
#2 Delivery	3/22/74
#3 Delivery	4/19/74
#4 Delivery	4/19/74
#5 Delivery	5/17/74
#6 Delivery	5/17/74
#7 Delivery	6/21/74
370/168 Model K	
#1 Delivery	4/19/74
#2 Delivery	5/17/74
#3 Delivery	6/21/74

# SYSTEMS & PERIPHERALS

## Bits & Pieces

### Keypunch Course Guarantees HS Graduate Will Finish

CHARLOTTE, N.C. — Teaching high school graduates to become competent keypunch operators has taken a major step forward with the announcement by Cardinal Associates that its 12 course, audio-visual training package guarantees 90% of the qualified trainees will achieve at least 90% of the course objectives. One of the qualifications, however, is a 40 word/min. typing speed.

The student will attain at least 9,600 keypunches/in. in 24 to 30 hours of individualized instruction, according to Cardinal.

Basic keypunch proficiency is reached in less time. The method of training — "hands-on" which enables the student to learn the discipline of keypunching while students learn on their own without supervision. An instructor makes strategic progress checks to administer the program successfully, Cardinal noted.

Cardinal Associates is at 427 E. Morehead St., 28202.

### 100 Char./Sec Printer Handles 132 Columns, Priced at \$2,600

HUDSON, N.H. — Centronics' 100 char./sec impact printer, designated the Model 500, uses a 5 by 7 dot matrix and prints 132 columns. The company offers a range of interfaces, including serial, which allow the \$2,600 printer to be styled for specific applications. Capable of producing an original and four carbon copies, the 500 can operate with the paper supply located to the rear or below the printer. The character set can be increased up to 128 characters on option.

The standard mode produces a line of elongated boldface characters on command and an optional feature allows the 500 to elongate a single character. The 500 is plug-to-plug and software-compatible with all other Centronics printers.

The company is located at One Wall St., 03051.

### Controller Interfaces Line Printers To Digital Equipment's PDP-11 Mini

ORANGE, Calif. — Line printers from "standard" to high speed are now interfaced to PDP-11 minicomputers utilizing a controller designed by MDB Systems, Inc. which is software-compatible with both the DEC standard LP-11 and the DEC Special Systems Group LS-11 line printers.

Burdened or unburdened printers, such as Centronics, Data Printer, Data Products, Pertec and Printex units, are connected to PDP-11 computers through a plug-in printed-circuit board.

Prices start at \$450, including cables. MDB Systems, Inc., is at 981 N. Main St., 92667.

## NEW FROM DECISION DATA The 80 Column Alternative



## Univac 90s Get 3330-Type Drive

PHILADELPHIA — Univac has added a 3330-type disk drive to complete its Information Storage Systems subassembly acquired last year, to the 90/60 and 90/70 computer systems. The 8430 has the same number of cylinders, 404, the same data transfer rate, 800 kbytes, same storage capacity, 200M bytes and the same maximum read/write speed, 3,600 rpm, as the IBM 3330. Average access time is slightly faster at 27 msec, however, than is the 3330 at 29 msec.

The 8430 uses any 11-high IBM 3330-type equivalent disk pack, and error-detection codes are used to detect and correct errors to increase reliability, according to Univac. The media is compatible.

A programmed servo offset provides the ability to recover data during search and read operations by moving the arm positioner a small amount from its normal position.

The minimum 8430, consisting of a control unit and two 8430 spindles, costs \$107,520. Monthly charges, including maintenance, on a one-year rental will be \$2,800 with deliveries scheduled for this fall.



840 Disk Drive

## How's Your Power?

FT. LAUDERDALE, Fla. — Users wondering just how bad their power line variations really are can rent the Data Research Corp. Powerguard monitor at any one of the General Electric Instrument Rental Program facilities.

Powerguard will warn the user of line voltage variations down to 1 msec duration.

It is a complete monitoring system including strip/chart recorder, transient detection electronics, audible and visual alarms and digital clock to indicate power malfunction.

Pluggable set up to 1000 lines, the unit rents at \$150/mo from GE on a month-to-month basis. \$76.85/mo from Data Research on a two-year lease, and can be purchased for \$1,485 from the company at 2601 E. Oakland Park Blvd., 33306.

## Cal Data Memory DEC-Compatible

SANTA ANA, Calif. — California Data Processors (Cal Data) is now shipping 8K and 16K memories which are compatible with the entire line of DEC's PDP-11 computers. When used with or in place of DEC-supplied memory in models 11/15 and 11/20, the 8K and 16K memories add 24K or 32K of Cal Data memory to be added in the computer cabinet within the space equivalent to one DEC system unit, according to the company.

### Expansion to 128K Words

Cal Data offers memory expansion to 128K words in the 11/35, 11/40 and 11/45 by installation of an optional memory management unit. The firm will also provide expanded memory addressing for 11/05, 11/10, 11/15 and 11/20 models to meet custom requirements.

The 8K and 16K memories also offer an

option providing for operation of up to 31K of memory in systems without either a DEC or Cal Data memory management unit. In these configurations, Cal Data reserves 1K addresses for non-memory I/O devices instead of the 4K addresses reserved in the standard configuration.

Full cycle and access time is 675 nsec and 275 nsec for the 8K memory and 850 nsec and 300 nsec for the 16K memory. Interleaved operation may be effected with pairs of 8K or 16K units.

The 8K unit is priced at \$2,250; the 16K unit at \$3,250. Delivery is within days for single 8K units and 30 days for single 16K units.

The company, recently acquired by Data 100, now offers users the support of Data 100's service engineers. Cal Data is located at 2019 S. Ritchie St., 92705.

Computer users and Original Equipment Manufacturers agree. Our 8010 Interpreting Data Recorder is the finest 80-column data entry unit available anywhere.

Off-line it'll keypunch, verify, reproduce, gangpunch, interfile and interpret 80-column cards at speeds that invite comparison.

On-line it offers the OEM complete card I/O as a reader, punch, and printing reader punch in a single machine while providing all the data preparation functions off-line, too.

The Decision Data 8010. For end users, a faster, more versatile and less expensive way to prepare 80-column cards. For the OEM, a unique multi-purpose unit that offers modern, low cost card peripheral capability for business systems, mini-computer and terminal applications.

**The 8010: The Ultimate in 80 Column Performance and Economy.**

DECISION DATA  
100 WITMER ROAD, HORSHAM, PENNA. 19044  
(215) 474-3900 C TELE 25-1171

## 165 Users Polled

### Most S/3 Sites Cost \$69/Hour

By Vic Farmer  
Of the CW Staff

CAMBRIDGE, Mass. — Do System/3 users know how to use their machines effectively? That was the main question an MIT student sought to answer recently when he conducted a survey.

Of the 165 users, Mitchell A. Ring found the median user logs 135 meter hours a month with most centers operating one shift — 100 out of 165. Fifteen centers, however, did operate three shifts.

Equipment rentals ranged from just under \$1,000/mo to just over \$7,500/mo with the median rental at \$2,425.

Applying the average rental cost to meter operation hours revealed that most users are paying about \$17.75 per meter hour of operation, which when multiplied three-and-a-half times to allow for overhead and personnel costs shows the typical S/3 user is paying about \$69/hr for his center.

Over half of the users reported their average I/O rate (cards read plus lines printed) to be under 50, with the median I/O rate at 43.

The survey also pointed out that the median system cost to process 1,000 cards or printed lines is \$7.74. Here again this figure is multiplied by 3.5 to allow for overhead and personnel and gives a total cost of \$27 for 1,000 I/O input or output lines. The median cost for users, however, paid from \$16 to \$28 in machine costs to output 1,000 lines or input 1,000 cards.

## Boxing With Output?

FRANKLIN PARK, IL — Deck-top file boxes suitable for storing almost any type of micrographic and data processing records are available from Bankers Box/Record Storage, Systematic.

The Data-Pak 612 can be ordered for filing microfilm, microfiche, 80- and 96-column punched cards or printouts and costs \$4.10 each. The Data-Pak 608 stores unburst printouts and costs \$4.40 each. The company is at 2607 N. 25th Ave., 60131.

## Tape Seal Now One Piece

LIVONIA, Mich. — Are your tape seals getting old and failing apart when you need them the most? Engineered Data Products, Inc., has a new tape seal, making it of one piece construction requiring no separate latch or hook components. The seals are priced at \$1.50 each with quantity discounts. The company is at 37200 Amherst Road, 48150.

# Independent Disks Boost Throughput 44%, Cut Costs

WESTWOOD, Calif. — A medical research computer service has improved its throughput by 44% and slashed its data storage 15% by using an independent-supplied disk drive.

Health Science Computing Facility (HSCF), functioning with the department of biostatistics at UCLA, installed the Memorex 3660 disks two years ago to replace disks for 2314 on-line on-line HSCF 360/91.

According to Doug Thigpen, manager of operations at HSCF, "We experienced, while running with identical programs, an average access time reduction from 60 msec with on-line 2314 disks to 38 msec with the 3660 disks, a saving of 44%."

On top of this improvement in throughput, the facility has realized a 15% rental saving.

The most popular disk data base consists of more than 1.5G bytes of information. The facility, funded with NIH (National Institute of Health) grants channeled through UCLA, has two basic objectives: serving research project investigations for more than 700 users, and developing computerized techniques which enhance the nation's medical capabilities.

One of the facility's practical and ongoing contributions to medical health is its organ transplant and blood bank compatibility performance in conjunction with the laboratories at the UCLA Medical Center's department of surgery.

Blood samples from potential organ donors and recipients are received worldwide from over 120 transplant and transfusion centers. Once analyzed and typed at the laboratory, resulting data is keypunched, read into a Data 100 terminal and transmitted over voice-grade phone lines several blocks away

to HSCF. There test data is disk-filled for computer compatibility matching of individual donor and recipient blood characteristics to obtain the best prognosis of compatibility.

Two remote users, the Bethesda Cancer Institute in Maryland and the Veterans Hospital in Nashville, Tenn., utilize on-line bidirectional transmission of test data because of the critical time value associated with their volume of compatibility requests.

Bethesda's program, originated and supervised by Dr. Robert Graw, relies on HSCF's compatibility data base to prolong lives

of leukemia victims. The disease, fatal without blood replacement, is usually associated with children.

Whenever blood is required by a patient, a request initiated from a communications terminal there, results in a return message identifying potential donors.

Communications control is in a M-1000, 1270 communications control unit interfaced to the 360/91.

The Veterans Administration Hospital program, under the direction of Dr. Keith Johnston, specializes in kidney transplants

of children.

From the disk-filled data base of recipients match-up data including doctors' phone numbers as retrieved, compared and re-examined by the doctor exercises the final decision on proceeding with the transplant.

"Over 18,000 individual typings are contained in our active disk file — another 64,000 inactive typings are also filed," stated M.C. Langston, data processing manager at one of the labs. "Disk files are updated daily to give using centers the maximum opportunity of obtaining matches as they are needed.

Based upon its success with its current 27 Memorex 3660 disk drives, HSCF recently installed four 3670 Memorex drives. The 3670 is a double-spindle module with a maximum capacity of 200M bytes of data storage.

With a rated average access time of 27 msec, the drives offer a potential of further improving throughput 20%. While rental per module will only increase by 15%, the result of upgrading from the 3660 to the 3670 drives, rated capacity per module will increase by a factor of over six (29.17M bytes to 200M bytes).



**Great news for  
"floppy" disk users...**

**All  
IBM Diskettes are  
fully compatible with  
Information Terminals'  
new flexible disks.**

**Not "as good as" ours,  
mind you,  
but 100% compatible.**

**PEACE!**

## BEYOND SMF QCM

Quantitative Computer Management (QCM) is a comprehensive resource management and job accounting system for IBM data centers.

### QCM GOES FAR BEYOND SMF

- Times (does not sample) all I/O and CPU activity.
- Real continuous with extremely low overhead.
- Produces graphs and numerical reports of:
  - Total System Productivity
  - Job Overhead
  - Hardware and Software utilization.
  - Job Costs and Turnaround.
  - Plus many other activities.
- REGULATOR dynamically implements performance.
- Education and consultation included.

**DUQUESNE  
SYSTEMS INC**

355 Fifth Ave.  
Pittsburgh, PA 15222  
412/281-8055

## How to Pick Up 2.5M Words

HAYWARD, Calif. — Users of Computer Automation's Altair-16 minicomputers can add 2.5M words of storage using the Digimetric 1101A cartridge disk drive and controller.

The system features a fixed and removable 5440 or 2315 disk cartridge. Average access time for the drive is 35 msec and data can be transferred at 1.56 Mbit/sec.

The controller provides the word buffering and signal timing for drive/disk transmission, using the block I/O and auto I/O data transfer modes of the computer and does not require DMA.

The system is also compatible with the LSI-1, LSI-2 models and 216/116 mainframes.

Priced at \$7,500, the unit includes disk drive, controller and operating software. Delivery is two to four weeks. Complete specifications and applications assistance are available from the manufacturer.

Digimetric is at 20698 Corsair Blvd., 94545.

## Graphics Available for SPC-16 Minis

SUNNYVALE, Calif. — Computer graphics are now available to systems designers using General Automation SPC-16 mini-computer models 30, 50 and 70 by means of the Data Disc 6600 Television Display System.

The 6600 is a high resolution display system that uses standard television-type monitors. As many as 16 high-resolution displays may be driven by independent video channels. Color TV monitors are used for each channel, showing seven colors plus black.

Video channels may be combined for form overlay of projected data displays. Gray scale

capability is available at four or 16 levels which, when used on color monitors, can provide up to 4,095 colors.

### Quarter Million Points

Graphs and charts are made up of over a quarter million individually addressable display points and up to 3,200 alphanumeric characters may be displayed on the screen at one time. Character entry rate is 30 page/sec.

A 16-terminal system, complete with video generator, disk refresh, 14-in. TV monitors, keyboards and interfaces, costs

about \$4,800 per terminal. Data Disc is at 686 W. Maude Ave., 94086.

## Printer, Floppy Disk Enhance Datapoint 2200s

BEEVER HILLS, Calif. — The 2200s Model 2235 combines 30 char/sec Diablo printer and a floppy disk storage system to interface with the Datapoint 2200. It expands the output of the Datapoint 2200 and lets the user enter, edit, retrieve, store data in both hard and soft copies of text, digital data and graphic images.

The printer allows the operator to print out an exact duplicate of the data appearing on the screen — whenever it is desired. The printer has two independently operating disks of 130K characters each.

When combined with the Datapoint, the floppy disk system offers capabilities such as: automatic instant find of any predefined data; direct disk access for not only data, but programs as well; faster sorting of data; automatic merging or modification of data; storage and computations of all transaction data (sales per item, unit price, inventory, etc.); automatic logons; faster throughput of data entry and many others. It permits disk-to-disk, duplicating for communications security in less than five minutes.

The printer, floppy disk, power supplies, controllers and cabinet — and costs \$5,950.

MG Computer Corp. is at 9952 Santa Monica Blvd., 90212.

### Rack Your Punched Cards

LOS ANGELES — Users with lots of punched cards or paper tape can get multiple card racks with any number of pockets to hold the cards, from Beemak Plastics at 7424 Santa Monica Blvd., 90046. An 18-pocket rack, for example, costs \$15.30.

## ZAP® COMPUTER ZIP CODING

You can **SAVE** over \$36 per thousand in increasing postage rates mailing bulk third class with ZIP CODES.

ZAP, the ZIP Attachment Program, affixes the proper ZIP code to any mailing address with phenomenal speed and accuracy.

Our ZIP coding capacities exceed 6 MILLION records per week.

If you would like more information on ZAP® call the ZIP CODE HOT-LINE (COLLECT) 312-279-7600. No obligation, of course.

**LIST  
PROCESSING  
COMPANY**  
800 Larch Avenue (Eckhardt), Hoboken 07036  
212/719-7600



In recent years, computer media buyers have been besieged by companies offering media products comparable to and "as good as" IBM.

Now we have no quarrel with this strategy, but if a user wants something substantially better, at less cost, why not give it to him?

That is what our new line of flexible disks is all about. They're simply a pretty fair piece better than IBM's Diskettes.

Here's why.

ITC offers a smoother, superior surface which incorporates a proprietary intermix lubricant that results in more than 11 times the wear you normally expect from conventional "floppy" disks. OK?

Furthermore, our disks have an extremely precise, tight standard of initialization. We may not be perfect, but perhaps, you're the final judge.

There's much more to be said about our new product but right now we'll put our mouth where our disks are by absolutely guaranteeing their performance. Every single ITC disk is certified to be 100% free of defects. There are no exceptions.

One last comment.

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## Performance Winner

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# SOFTWARE & SERVICES

## Pundits Ponder Programming Productivity Problems

### Seminar Studies Test Techniques

By Don Levitt  
Of the CW Staff

BERKELEY, Calif. — Testing is the process of collecting evidence in support of a hypothesis. Evidence relating to the reliability of software, according to Dr. R. Strain Eanes, but, he admitted, no well-developed justification exists for interpreting test results in any particular way.

Speaking at a programmer productivity seminar sponsored by ComshareTech, Inc., the firm's senior systems engineer stated that testing can, at best, guarantee that certain kinds of failures are not present.

#### Kinds of Errors

Three major categories of errors exist, dealing with design, implementation and performance of the programs being tested.

Design errors are caused by failure to understand the problem fully, to understand the full implications of the proposed method of solving the problem, or to translate an adequate understanding of the problem into a specification for the module being tested.

The first design error can be found only by random tests of the system, especially in areas where the problem analysis is most complex or considered weakest. If the second type of error is not detected

early in development, the system may well meet its specifications but still not work correctly, Eanes noted.

To reflect a designer's intent accurately, a specification must be at least complete, precise, unambiguous and self-consistent. To be complete, it must state what effects the program will have on its environment, what relationships must be preserved and what can be assumed in implementing the module.

Construction errors are flaws that prevent a program from being satisfied. These errors occur in three principal ways: misuse of path, inappropriate path selection and inappropriate action under a given condition.

Performance tests show how a system uses available resources. Generally, analysis of where a system spends most of its time can be used to determine the time used at least 25%, Eanes told the seminar.

#### Two Approaches

Even at the "unit test" level, two fundamentally different approaches are used, Eanes recounted. Tests may be based on no certain knowledge of the internal structure of the program (the "black box" approach) or on complete knowledge of the program's logic.

After unit testing shows that the module runs "correctly" in terms of its specification, integration testing exercises the program in its working environment. If the original specs are correct, no errors

should be uncovered at this stage of testing, the engineer pointed out.

Testing, on the other hand, confirms the impact of new modules on those previously in the system. Tests in this case do not necessarily exercise the newly added module at all.

Eanes also asked his audience to consider the differences between top-down and bottom-up program development and subsequent testing. "Bottom-up" is the common approach, in which modules are built together until the system is complete. This type of testing usually requires building a "scaffolding" and errors in that can impact the tests on the actual application module being tested.

With "top-down" programming, the environment for testing each new module has already been designed and tested. The module is then "hooked" to the one being tested to "simulate" with a "stub" that at least gets the system back to the module being tested.

"Stub" is easier to build and to check out than "scaffolding," Eanes added.

He said automated tools — test data generators, monitors, trace routines — help programmers, but admitted Dijkstra was right: "Testing can demonstrate the presence of bugs, but never their absence."

*Next week Eanes' evaluation of techniques other than testing for promoting software reliability will be covered.*

### NSF Conference Hears Dijkstra

By James R. Donaldson  
Special to Computerworld

ALBUQUERQUE, N.M. — "For a large number of people, thinking is a reproductive activity," Dr. Edsger W. Dijkstra said recently, acknowledging that his methods of programming are difficult to learn and practice.

Guest lecturer at a National Science Foundation (NSF)-sponsored conference on Programming Methodology at the University of New Mexico, the 1972 Turing Award winner was clearly frustrated at the lack of appreciation of his ability to grapple with ever-increasing machine sizes and speeds, rising expectations of both users and computer professionals, and the enigmatic process known as programming.

Only a "small percentage" of today's programmers could adopt his approach, he felt.

Organized by Professor Stoughton Bell, director of the computing center at the university, the conference included much discussion about "program correctness proofing." Dijkstra argued that a program's correctness is validated with mathematical theorem-proving techniques rather than with traditional hit-or-miss debugging.

In his lectures, Dijkstra explained his approach to programming which is based on a set of axioms describing relationships between a program's final result, the process generated by the program, and the weakest precondition for the program to produce the desired final result. The problem to be solved is first expressed in terms of equations based on these axioms.

Then, program code is developed to implement the equations. As each program statement emerges, it is compared with the equations to ensure the equations' integrity has been successfully carried into the code. In this way, a program is built up whose correctness is assured.

This methodical approach to program ap- proaches that which is known to prove a program's correctness by developing expressions from the program statements and prove with the expressions that the program does the right thing. Dijkstra implied that this method may require impractically large amounts of computer work.

His method, he believes, produces a simpler, more elegant program by requiring that an elegant proof be developed before the program is written. Furthermore, he said, "The concept of weakest precondition can be used in the cornerstones for defining computer languages amenable to correctness proofs."

For his programming examples during the conference, Dijkstra used his own variant of Algol 68 which is specially suited to representing proof equations. He suggested he may have a textbook out on his method in about two years.

### 'Q/L/I' Links to DL/I

## Independent's Package Backs IMS Queries

NEW YORK — IMS/DC-controlled data bases can be accessed by non-DB programmers, without using Cobol, Assembler or PL/I, through the facilities of Query Language/One (QL/I) now available from Programming Methods (PMI). Though it works with the Data Language/One (DL/I) interface of IMS, QL/I uses an English-like command language.

The end user need not have any detailed knowledge of the data base structure, PMI spokesman noted. QL/I operates in either query or report mode, allowing quickly phrased logic and producing standard output, or more structured re-

ports that can be produced on a periodic basis.

#### Classic Support

Data base maintenance can be handled in query mode. In report mode, the package provides the classic support: pagination, sorting, merging, arithmetic, margin and tab settings and the like.

Full relational and logical operators in comparison statements are available. So are "full arithmetic capabilities," the company said, adding that functions may be used in the QL/I metalinguage to ease their future use.

The metalinguage supports three verbs (Define, Delete, Display) and parameters to shape the functions, PMI said.

QL/I also supports stored routines that complex queries, involving a number of logical steps, may be invoked by a single command. It also provides the stored routine. Query mode users who do not need immediate answers may use another QL/I under which responses may be deferred to batch processing.

The system now includes field and term-level data base security. The current QL/I interface is for IBM 3270 CRT terminals, as well as older terminals. QL/I may operate as a stand-alone query system for batch use or as an

on-line system under the communication support of IBM's IMS or PMI's own inter-computer teleprocessing monitor. Linkage to other data bases, other than IMS/DC/I, are in development, PMI added.

QL/I is available for a one-time fee of \$20,000 or a 48-month plan costing \$50,000/mo. Installation and a year's maintenance are included, but major enhancements and maintenance after the first year are separately priced.

PMI, a division of GTE Information Systems, Inc., is at 1301 Avenue of the Americas, 10019.

### CICS Seminar Planned For Later This Week

NEW YORK — Senior technical and management staff can gain insight into IBM's CICS data communications support package at a one-day seminar sponsored by Computer Communications Corp. to be held at the New York Hilton Feb. 7.

The session will cover the current status of CICS under both DOS and OS/VS environments, problems in using the system and debugging aids that are available. Other teleprocessing monitors will be compared to CICS at this \$35 meeting, a spokesman noted from 747 Third Ave., 10017.

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# COMMUNICATIONS

## Data Standards Work Affected by IBM's SDLC

By Ronald A. Frank

of the CW Staff

**WASHINGTON, D.C.** A proposed data communications protocol standard submitted to the American National Standards Institute (Ans) by IBM may contain differences from other proposals now under consideration as part of an international standards effort.

IBM has proposed a standard for its Synchronous Data Link Control (SDLC) protocol despite the fact that a special committee of ANSI, designated X3.53, has been working for some time on a similar bit-oriented protocol known as Advanced Data Communications Control Procedure (ADCCP).

To further complicate the issue, a worldwide effort has been under way for some time to arrive at a standard high-level bit-oriented communications protocol in anticipation of international data communications networks.

It now appears that several non-U.S. standards have been proposed that are close to the U.S. ADCCP protocol. Last December the general assembly of the International Manufacturers Association (Ecmis) adopted the Ecmis-49 standard for a High Level Data Link Control (HDLC). The Ecmis-49 standard appears to closely resemble a similar stan-

dard from the International Standards Organization, called DIS 3309.

After preliminary evaluations, one standards expert said the Ecmis/ISO standard "exactly fits" the ADCCP proposal.

But the Ecmis/ISO standard does contain some

### A Standard Approach

differences from the IBM SDLC proposal which may be in the frame check structure, the expert said. It is now believed both the control and address fields are composed of the different bytes now apparent "may be a big problem for the experts," said "If you adhere to the frame structure standard, I think you can use either ADCCP or SDLC," he said.

But it is still too early to say whether IBM's SDLC equipment will be compatible with ADCCP and/or the Ecmis/ISO standard. An IBM spokesman said it was "premature to answer" the compatibility question, but that the issue is under consideration.

The current Ans standards machinery has been working on ADCCP for some time. A special Task

Group 4 of Ans is expected to vote soon on whether to adopt ADCCP. If approved by the Task Group, it would then have to be voted on by the S3 level and finally by X3 to become a standard. If approved at all these levels, suppliers will probably begin to provide equipment and software to meet the new standard, the expert said.

The IBM SDLC standard proposal was first introduced into the standards environment about a year ago. It is a modified version of a representative of IBM France. It was proposed to Ans by IBM last December and has not yet formally been submitted to the Task Group. A uniform bit-oriented communications standard is needed in order to implement international data transmission networks of the future. If IBM's SDLC contains significant discrepancies from other standards, it could seriously impact the growth of such networks.

At present, there is no reason to assume IBM intends to set up its own line protocol standard in order to lock users into IBM equipment. But if previous IBM policy is any indication, experts point out that IBM never fully supported Asci. Its equipment, while compatible with Asci, has primarily been designed for Ebcic even though most non-IBM equipment adhered to the Asci standards.

## One State's Blue Cross Net —Part II

### Asiscopes 'Best' for Low-Volume Inquiry/Response

By Pat Ward

Of the CW Staff

**COLUMBUS, S.C.** Although his ITT Asiscopes failed him more often than he thought they should, the terminals' performance at the price is the best he's seen for his application, observed Marion Kolb, director of telecommunications and control for Blue Cross of South Carolina.

The individual hospitals use the Asiscopes to enter a relatively

### User Casebook

low volume of eligibility checks for health care benefits for transmission at 300 bit/sec to Blue Cross headquarters here.

This is not an "all-day continuous inquiry type thing," Kolb stressed.

"Some hospitals, the smaller hospitals, may only make only two inquiries a day through this," he said. "For low-volume inquiry and response, I think it's an ideal system to use," Kolb said.

The lines come to serve the hospitals come to about \$1,600/mo, including five Bell 103A modems at the central site, said Kolb, who considers that an economical figure for the service provided.

Three Wats lines are used, two full and one measured, plus two local lines for nearby hospitals.

The system provides inquiries for basic, in-state information with instantaneous response. Inquiries for Medicare or the Federal Employee Program are run through the Blue Cross mainframe 3200 CPU and put on message tape which is then sent out over a Honeywell magnetic tape transmission (MTT) device onto the Blue Cross national net to the switching center in Chicago.

Replies come back over the MTT and that tape is pulled off in the morning, before the communications system to the hospitals is brought up.

When the users open their terminals to the central site, the system indicates how many pending Medicare replies are pending.

The hospitals have the option of retrieving those pending replies any time during the day.

Most of the larger hospitals don't use an Asiscope's built-in acoustic coupler but rely on a Data Access Arrangement (DAA) instead.

Smaller hospitals that are going to have fewer calls a day don't want the expense of having a special phone put with an automatic dialer to use the couplers,

Kolb said.

Most of the larger hospitals attach NCR 260, 30 char/sec printers to their ITT Asiscopes. Blue Cross recommends this for hospitals that have a high volume of inquiries and want hard copy printouts.

Another hospital with lesser volume and where "there is something they can stand" might use Model 33 RDS, Kolb said.

On March 1, Blue Cross will go to an IBM 370/145 mainframe with a 3704 front end, Kolb mentioned, and soon after hopes to start testing transmission of patient claims from the hospitals.

Before the move to Asiscopes,

19 hospitals had been sending inquiries over teletypewriters and the rest had been mailing them to Blue Cross.

Keying Cut 66%

The move to the new system is cut keying by 66% at Blue Cross and speeded up billing and cash flow and reduced bad debts at the hospitals, Kolb stated.

Another terminal, Kolb remarked that sometime's 1000 lines cost only \$49/mo and "that's a good price, but it does not have a built-in modem and it only operates in character mode."

The Hazelite 2000 leases for \$84/mo and would do the job, but it has features not really

needed by Blue Cross and even it doesn't have a built-in modem, Kolb declared.

Blue Cross passes along to the hospitals the cost of the equipment.

For a large hospital, that might include the Asiscope at \$65/mo and the NCR 260 at \$75, (both on one-year leases) and the automatic one number dialer and DAA costing \$5 between them. A hospital business line would bring the total with tax to about \$175/mo.

Hospitals using the Model 33 RDS could cut about \$55 from this Kolb mentioned, and the smallest hospitals wanting just the Asiscope would be charged only for its \$65/mo lease.

### Data Services Adds Cassette Buffer

**MAIWAH, N.J.** — Western Data Services has added a 10-char./sec and 120 char./sec transmit and receive capability to the teletypewriter's basic speeds of 10-, 15- and 30 char./sec.

The EDT 300 MSR, the latest cassette buffer, is available with the KSR version of the teletypewriter and is designed for data entry and polling applications.

The buffer operates in three modes: on-line independently of the printer; on-line with the printer; or locally off-line with the printer. It adds a 60 char./sec and 120 char./sec transmit and receive capability to the teletypewriter's basic speeds of 10-, 15- and 30 char./sec.

The cassette buffer can follow functions under remote computer or local keyboard control, including block receive and skip, allowing character editing. The buffer also provides an up-to-24-character programmed answerback; all but the last character are programmable to meet

application requirements.

Backspacing capability permits editing and error correction of data on tape during any local or remote mode of operation.

The MSR is compatible with EIA RS232 connections as well as customer-supplied Bell 202C and 103A modems and their equivalents with reverse channel. The EIA version is \$176/mo on a one-year lease and \$196/mo for a minimum 90-day lease.

The firm is at 85 McKee Drive.

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## Terminal Transmits at 19.2 Kbit/Sec

NEWTON, Mass. — Codex Corp. has a communications system that allows transmission up to 19.2 kbit/sec over two voice-grade lines.

Intended especially for mainframe-to-mainframe communications, the CT-6 terminal includes

a Codex 296 bipolar and two of the firm's 9600C modems in a cabinet, plus necessary cabling. The combined system provides full-duplex data transmission at speeds up to 19.2 kbit/sec by combining the capacity of two independent voice-grade chan-

nels, each operating at 9,600 bit/sec.

Use of the CT-6 over voice-grade lines costs considerably less than leasing wideband facilities to accomplish transmission over 9,600 bit/sec, a Codex spokesman stated.

The CT-6 incorporates automatic and semiautomatic fallback and fall-forward capabilities, the spokesman noted.

Audio and DC loopback capabilities are also built in, the spokesman stated.

The CT-6 costs \$25,700 purchase, or leases for \$760/mo from the firm at 15 Riverdale Ave., 02195.

## Monitor Transparent to Modem

MILWAUKEE, Wis. — Data Communications & Consulting, Inc. has introduced a data concentrator that fits transparently between business machines and any modems using the RS 232 interface, according to the firm.

The unit has male and female 25-pin connectors. It is 20 by 10 by 10 connection matrix. The matrix's horizontal rows are connected to leads two through 10 and 14 through 23 of the standard EIA-RS 232B/C connector. The vertical columns connect to seven test lights, and putting a pin in the connection between leads and test lights shows a "go" or "no go" state.

The unit can be inserted between modems and business machines as a monitoring unit, or it can independently generate control signals to the modem or business machine to isolate faults, a spokesman said.

In testing the modem in a full-duplex dedicated line facility, for example, a user might inserting in the matrix for send-data, receive-data, request-to-send and clear-to-send signals. A standard pin would be inserted in the request-to-send row in the +5 volts column.

The user could put another pin in the vertical connection row two (for send-data) and a sum of binary ones down the line would result. If there were a loopback arrangement at the other end, the receive data light

would come on, the spokesman explained.

The 200 Data Monitor costs \$425 including interface cable, with lease plans for quantity orders available. Delivery is 30 days from the firm at P.O. Box 3673, 53217.

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factory foreman.**

## CCITT Couple Offered

PHOENIX — Omnitel Corp. has announced a new manufacturer to CCITT standards.

The Model 704A offers originate/answer modes, simultaneous teletypewriter and RS 232 terminal interfacing, half- and full-duplex switching, optional DAA, line coupling and upright/inverted frequency switching, the firm stated.

The unit costs \$385 from the firm at 2405 S. 20th St., 85034.



Spots people ask why there's such a great interest in products that operate at very high speeds. Especially since the cost of such equipment is usually higher priced. Still, many data communications systems are using data rates like 4800, 7200 and 9600 bits-per-second. So, why is it easy to understand why. For one thing, the ICC engineers estimate that if we were to transmit just one page of text at 9600 bits-per-second, we'd need to transmit 9,000 bits of information! So, a typical business document, for example, could take millions of data bits. With the speed of 9600 bits-per-second, no wonder users are anxious to transmit their data fast as possible.

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If you have questions or topics you'd like me to write about, just write and send them to: "Sherry Says" c/o Mohawk Data Sciences Corporation, 7800 N.W. 19th Avenue, Ft. Lauderdale, Florida 33317. 11-75

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## Device Controls TTY Motor

CAMBRIDGE, Mass. — CSM Medical Devices has a device that turns on the motor of a Model 33 teletypewriter in line mode for receiving data and turns it off again after transmission is received.

This saves wear on the motor, which would otherwise be running constantly as the teletypewriter was in line mode, a CSM spokesman stated.

Called the TTC-301, the module mounts within the teletypewriter enclosure and requires no external power connection, according to the spokesman.

Independent timers, variable from one second to an hour, are provided for the on/off once the data is received.

The module is primarily intended for attachment to radio-only (RO) devices but there is a bypass switch attached to the TTY's keyboard to permit outgoing transmission, the CSM spokesman noted.

The control module costs \$89.50 with delivery from stock from the firm at 377 Putnam Ave., 02139.

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But now, your foremen and other plant supervisors can make a pretty good stab at it. Because MDS has just introduced a new group for our 4400 data collection system.

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# Listing of General Interest DP Societies Compiled

*Computerworld* has compiled an up-to-date listing of representative general-interest DP societies.

Trade groups of vendors, and groups requiring use of certain manufacturers' equipment are not included.

Executive directors and phone numbers have been added to this year's listing, where available.

American Institute of Aeronautics and Astronautics (AIAA), 1290 Sixth Ave., New York, N.Y. 10019. James Hartford. (212) 581-5000.

American Institute of Certified Public Accountants (Aicpa), 666 Fifth Ave., New York, N.Y. 10019. Wallace E. Olsen. (212) 581-8440.

American Society for Information Science (Ais), 1140 Connecticut Ave., N.W., Suite 804, Washington, D.C. 20036. Joshua Smith. (202) 659-3644.

American Statistical Association (ASA), 805 15th St., N.W., Washington, D.C. 20005. Fred C. Leone. (202) 393-2253.

Association for Computational Linguistics (ACL), 1717 Massachusetts Ave., N.W., Washington, D.C. 20036. A. Hood Roberts. (202) 524-4311.

Association for Computing Machinery, Inc. (ACM), 1133 Avenue of the Americas, New York, N.Y. 10036. Joseph Cunningham. (212) 265-6300.

Association for Development of Computer-Based Instructional Systems (Adcis), c/o Department of Academic Affairs, Ohio State University, 1080 Carrick, Columbus, Ohio 43210. G. Ronald Christopher. (614) 422-9821.

Association for Educational Data Systems (Aeds), 1201 Sixteenth St. N.W., Washington, D.C. 20036. Shirley Eastwood. (202) 833-4000.

Association for Systems Management (Asm), 24587 Bagley Road, Cleveland, Ohio 44138. Richard Irwin. (216) 242-6900.

Association of Computer Programmers

**IEEE/CS Elects You President**

NEW YORK—Dr. Stephen R. Yau of Northwestern University has been elected President of the IEEE Computer Society.

A member of Alips Board of Directors,

Yau is Conference General Chairman of the upcoming 1974 National Computer Conference and Exposition.

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communities

and Analysts (Acpa), P.O. Box 95, Kensington, Md. 20795. James Manley. (301) 949-8347.

Biomedical Computing Society (BcS), 5333 Westbard Ave., Bethesda, Md. 20204. Robert Crowley. (301) 453-2583.

Communications Systems Management Association (CsmA), West 1102 St., Suite 1001, Wilmington, Del.

Computer Lawyers Group (Clg), 28 St. St., Suite 2200, Boston, Mass. 02019. Robert Bigelow. (617) 742-8300.

Data Processing Management Association (Dpma), 1000 1/2 Busch Hwy., Park Ridge, Ill. 60068. Donn Sanford. (312) 825-8125.

Geoscience Information Society (Gis), c/o The American Geologic Institute, 2201 1/2 M St. N.W., Washington, D.C. 20036. (202) 296-7950.

Graphic Communications Computer Association (Gcca), 1730 North Lynn St., Arlington, Va. 22209. Norman W. Scharpf. (703) 527-6000.

Institute for Certification of Computer Professionals (Iccp), P.O. Box 1442, Chi-

ago, Ill. 60690. (312) 427-6776.

Institute of Electrical and Electronics Engineers, Inc. (Ieee), 345 East 47th St., New York, N.Y. 10017. Harry Hayman. (212) 752-6800.

Instrument Society of America (isa), 401 Stanwix St., Pittsburgh, Pa. 15222. Herb Kindred. (412) 281-3171.

International Communications Association (Ica), P.O. Box 445, Flint, Mich. 48501. B. Martin Hurley. (313) 766-2154.

International Tape Association (ita), P.O. Box 1070, Tucson International, Tucson, Ariz. 85734. Larry Finley. (602) 889-6338.

Larc Association (formerly Library Automation Research and Consulting Services), Box 27235, Tempe, Ariz. 85282. Frank Patrino. (602) 962-2023.

Numerical Control Society, Inc. (Ncs), P.O. Box 138, Springfield, N.J. 07082. William White. (201) 499-1400.

Simulation Councils, Inc. (Sci), Box 2228, La Jolla, Calif. 92037. Alex Mc-

Kenna. (714) 459-3888.

Society for Industrial and Applied Mathematics (Siam), 33 S. 17th St., Philadelphia, Pa. 19103. Robert Windsor. (215) 564-2929.

Society for Information Display (Sid), 631 Sepulveda Blvd., Los Angeles, Calif. (213) 472-2550.

Society for Management Information Systems (Smin), 18 S. Michigan Ave., Chicago, Ill. 60603. (312) 346-1862.

Society of Certified Data Processors (Scdp), 38 Main St., Hudson, Mass. 01749.

Society of Data Education (Sde), 247 Edythe St., Livermore, Calif. 94550. Arthur M. Pike. (505) 894-6732.

Society of Professional Data Processors (Spdp), Green Lake Farm, Fayetteville, N.Y. 13066.

Special Libraries Association (Sla), 230 Park Ave., New York, N.Y. 10003. Frank McKenna. (312) 777-8136.

Telecommunications Association (Tca), 6311 Ucca St., Los Angeles, Calif. 90028.

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You asked for fastest speed to minimize test time and to generate flicker-free displays.

The new UA-500 operates in real-time to 10 KHz and analyzes up to 100 KHz. It produces 20 displays/sec.

You asked for the best possible resolution so that small peaks can be detected close to large ones... no chance to miss important details.

The new UA-500 gives you 500 of the sharpest analysis filters with our proven 24 dB/octave slope.

You asked to measure digitally with a quickly set marker to prevent errors in reading the spectra and averages.

The new UA-500 gives you a digital reader which calculates the absolute frequency setting of a vertical cursor consisting of a line and a dot. (Digital amplitude display optional.)

You asked to hold past data for comparison of averages before and after changes in the test conditions.

The new UA-500 gives you three memories... two in the averager and one in the spectrum analyzer. Spectrum data obtained from any two can be compared on one CRT. Total storage is 2500 digital words.

You asked to see what's being analyzed to verify the quality of the data.

The new UA-500 gives you instantaneous spectra which can be viewed on the same CRT as averages... input time function can also be displayed on CRT.

You asked for a small portable unit to use in the laboratory or in the field.

The new UA-500 gives you the first combined 500-line Analyzer-Averager... one 8 1/2" unit.

## Plus other standard features:

Transient capture, exponential and peak averaging, lim-log scales both vertical and horizontal, complete plug-in filter selection, and a wide range of compatibility with remote sensing or control (optional).

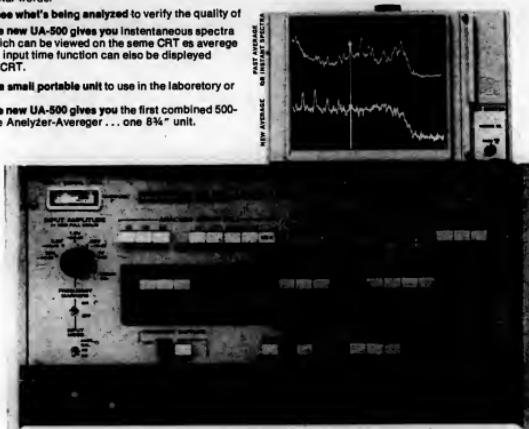
The new UA-500 is the ultimate analysis system... the most powerful performance for the lab plus compact size to take into the field. The features you've been asking for are now all in the standard unit at a reasonable price. You can also rent now and buy later.

Write for our free booklet "111 questions you should ask when buying a real-time spectrum analyzer," or call us for a demonstration at your facility.

We are ready to assist you with your analysis problems. Contact George Lang, Manager Application Engineering.

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DAS users know that when we say "HASP", we don't mean we will run with HASP (just about any program will run with HASP). We mean we deal with the problems HASP presents. We do the same for A3P version 3. and V3.

Some of the key questions you should be able to answer are:

- How specifically are system resource costs distributed to jobs? As thoroughly as hardware vendors break down my charges? Are the same units of measure used?
- Is it possible to determine the cost of a device, is the costing unit hours?
- Does the system prevent units consumed and charges summarized on account code structures suitable for distribution to users?
- If a job ties up a tape, or a private disk, and never does a single EXCP, is the tape or disk charged for? [It should be!]

- Can I differentially price TSO jobs?
- Can I charge 140% of my base rate for high priority mid-day runs and 85% of my base rate for low priority mid-night runs? How many ways can I break down my system for this purpose?
- Can I apply sliding charges for limited resources such as core or tape?
- Can I apply different costs for different users?
- Can I distribute any OS overheads (=not measured directly by SMF) back to jobs, such as initiator and IOS functions? Equivalently?
- Can I apply minimum charges?
- Can I charge for CPU, core, etc., for each of my mainframes. Can I cause an entirely different set of rates to be applied to select group of users on that mainframe WITHOUT modifying the accounting software?
- Do I have to "dry up" my operating system to do daily costing [to cut down weekly or monthly "accounting system" overhead?]

## Don't Neglect System Controls

TORONTO, Ont. - A simple way to determine the security of your computer system is to check it against the following list of security "musts" concerning system controls in data security.

- Screen savers for your applications to determine their legitimacy, and to determine if continual use of the system, by a given user yields more information than he is entitled to have.
- Use techniques such as verifying key input fields, balancing input fields to produce balanced totals, using computer-generated input, and writing edit routines to check the accuracy and completeness of data.

- Design systems with adequate internal program controls to ensure the accuracy of data and the correctness of computations.

- Maintain counts of the records on files before and after processing, and reconcile file control totals for individual computer runs with transaction and input control totals.

- Compare output control totals with predicted totals to ensure that no records were lost during processing.
- Design systems with exception reports of transactions rejected by the system.

- Design systems with helpful console error messages.

- Ensure that programmed controls are not being overridden, by performing periodic audit tests of the system.

- Provide the internal audit group with a copy of all operational program documentation for computer systems and notice of all system changes.

- Provide an audit trail of all tapes, disk files, programs and supporting documentation; update it regularly as system changes are made; and audit the inventory periodically.

- Keep periodic tests of production programs, program dumps or traces and transaction logs to provide an audit trail of computer systems.

This checklist was compiled by DCF Systems Ltd., 74 Victoria St., Toronto, Ont. MSC 2A5.

## The Long Arm of NCIC

Law enforcement information networks around the country have really been earning their keep lately.

Officials in McClellan County, Texas, tracked two probation offenders through the National Crime Information Center and the Texas State Information Center. In addition, Illinois State Police learned through NCIC that a man they stopped on the highway was wanted for questioning by McClellan County officials.

Curiosity got the better of a Grand Haven, Mich., man who stopped a patrol car and asked the officer to show him how the car worked. The officer then showed him the Michigan's computerized information network. The patrolman used the man's car for the demonstration and obtained a report that the vehicle was sought for traffic violations in two other cities.

## CI Notes

### AM Gets \$14 Million Order

CLEVELAND — The Data Systems Division of Addressograph Multigraph Corp. has received a contract worth more than \$14 million from National Data Corp. for electronic credit authorization terminals for gasoline service stations and for merchant locations honoring bank credit cards.

### Japan OKs Burroughs Firm

DETROIT — The Japanese Government has approved Burroughs Corp.'s application to purchase a 50% equity interest in its Japanese distributor, Takachiho Burroughs Co., Ltd., which is currently a wholly owned subsidiary of Takachiho Kogyo Co., Ltd.

Revenue for the Burroughs distributor in Japan from the sale of Burroughs products in 1973 was about \$113 million.

### Honeywell Cuts Factory Force

PHOENIX — Honeywell is cutting its Series 6000 manufacturing work force here by about 200 employees and by 80 employees in San Jose. Because of design and production improvements the firm has been able to reduce the work force while increasing production schedules, a spokesman said.

Honeywell expects to exceed its 1973 shipment of 1,200 Series 6000 systems this year, he said.

Employees are being added in engineering and marketing departments and efforts are being made to place the surplus employees in other jobs, he said.

### AMS Supplies CDC

SUNNYVALE, Calif. — Advanced Memory Systems, Inc. has received a contract valued at \$11 million to supply add-on memory systems to Control Data Corp. Deliveries have begun and will continue throughout the year.

### Supershorts

DiAn Controls, Inc. will market and support in North America the Ferranti FT7 programmable terminal and other data communication products based on the Argus 700 computer. The agreement includes the right to manufacture in North America.

Micr Systems Ltd. has been appointed distributor in Eastern Canada for Lockhead Electronics Co.'s System III mini-computer.

Bunker Ramo's 1,000th ESIS electronic cash register has been installed at the Stop & Shop supermarket in Fairfield, Conn.

Diablo Systems, Inc. has delivered its 10,000th Series 30 disk drive.

# COMPUTER INDUSTRY

## Report Highlights Terminal Growth

### European Banks Put Their \$ in DP

By Toni Weissman

Orbis Corp.

LONDON — Over \$10 billion of DP equipment will be shipped to European banks in the 10 years ending 1982, according to a marketing forecast by Frost & Sullivan, Ltd.

Included in this amount are \$6 billion in mainframe systems and peripherals and \$4 billion in terminal systems and specialized banking equipment.

Bank terminals, in Frost & Sullivan's estimate, represent the largest sales potential. This type of equipment already represents half the installed value of DP equipment in the banking industry.

The next decade will be a period of reorganization and reequipping, the report said, with a trend toward paperless transactions and on-line operation, with all essential data being captured at branch level.

The European banks and gicos have a present daily transaction volume of over \$1 million, according to Frost & Sullivan, and this is growing at an annual rate of 10%. The report estimated that by 1982, the total number of banking transactions in Western Europe will have reached a level of 120 million a day.

The market analysis predicted mainframe and terminal peripherals will be the largest sales items based on the present installation of some 1,500 computers in European banks.

The report estimated sales of \$520 million for this year, growing to \$650 million in 1978 where it will level off for the next four years.

### Suit Alleges Spy Ring Was IBM's Own Idea

CW West Coast Bureau

SAN JOSE, Calif. — A Superior court judge has rejected a claim that IBM created a ring to steal its own trade secrets.

Eleven persons have been arrested and charged with conspiring to steal IBM's plans for its 2314, 3330 and 3340 disk drives.

Their trial is set for April 1.

James Crew, an attorney who is seeking disclosure of the charges, claimed that in late winter of 1971, IBM created the ring when it solicited and hired David Burgett to "create an alleged criminal conspiracy against it."

"IBM stole its own secrets and also tried to steal a few from Memorex," according to Crew.

He cited as the source of his claims the grand jury transcript.

Crew said he plans to appeal the judge's ruling to the U.S. Supreme Court, if necessary.

An IBM spokesman said the judge's ruling speaks for itself.

Bank terminals already represent 50% of the installed value of DP equipment at bank branches, the analysts stated, with remote batch and on-line terminals for data entry and teller terminal systems a growing market.

From an estimated shipment of \$76 million in bank terminals in 1973, the market will almost double to \$149 million by 1982, up to \$300 million by 1982, the report said.

Frost & Sullivan forecast an increase in present sales volume for OCR/Micr readers/sorters up to 1975 when the equipment of German banks, which have already adopted the OCR font as a standard, should be complete.

Sales will rise from \$56 million this year to \$62 million in 1975 and then decline to \$11 million by 1982.

The related Micr/OCR encoders will follow a similar sales pattern, climbing to \$63 million in 1975 and reaching a low of \$8 million in 1982.

Cash dispensers will also be much in demand, according to the report. Shipments will reach \$18 million by 1982, up from an estimated \$5 million this year.

Germany is now and will remain the largest market for EDP shipments, followed by France and the UK, the report said.

In terms of manufacturers, IBM has an estimated 65% of the total market. However, the survey indicated NCR is second most favored for future requirements in the banking sector.

Frost & Sullivan said that there is sizeable popularity for smaller companies with good ideas to make substantial sales in the European banking sector, particularly in the software area.

The market analysis includes commercial and savings banks, government-sponsored gicos, building societies, agricultural credit installations and cooperative and people's banks.

### Independents Laud IBM Decision To Extend 2260 Base Support

By Molly Upson

Of the CW Staff

NEWTON, Mass. — "Absolutely delighted," "generally very pleased," "we think it's great," were some of the reactions of makers of 2260-type terminals to IBM's decision to support 2260s and 2265s under 370 data base management (Jan. 9).

Vendors surveyed by Computerworld indicated they thought the threat of an antitrust suit by Sanders was a major factor in IBM's decision.

"I would consider it part of a settlement between Sanders and IBM to get Sanders to agree not to file an antitrust suit," observed Joseph Norton, manager of systems application engineering at ITT.

"Healthy Move."

"I think it's a healthy move. I don't think it's the first move in that direction, but part of a continuing trend to where IBM is being forced to consider the other people in the market," Norton said.

"We think it's a healthy move," said Tom McEachran, national product manager at Wyle Computer Products, Inc.

"With IBM facing the government in an antitrust case, McEachran said he thought IBM saw the move as a way as it could give a concession that didn't cost a lot of money."

"The decision didn't cost IBM any money, because the 2260 had been written off long ago," he said.

McEachran said he was sure IBM would have preferred not to support 2260s under 370 data base, but "it's a minor concession. With the amount of sales they

have annually, I don't think they'll really even feel it," he noted.

Asked whether this move indicated a chink in the mammoth's armor, McEachran said he didn't think so. "A chink only occurs in IBM's armor when they allow it to happen."

Barry Maser, vice-president of marketing at Data Systems, said: "It's pretty tough to think IBM's armor; whatever they've done's going to come out ahead."

The 2260-type market is relatively stagnant, he said.

"This decision will prolong the life of the units, particularly since over a period of years, devices that started out being 2260-compatible went on to extend the capability and used newer technology than IBM had," Norton said.

### CMC British Unit Sold for \$10 Million

SANTA MONICA, Calif. — Computer Machinery & Associates has sold its British subsidiary for \$10 million to Multifinance N.V. of The Netherlands, a group of the subsidiary's executives.

CMC President Thomas L. Ringer said the agreement eliminates the need for equity financing in 1974.

The subsidiary accounted for 8.2 million or 16% of CMC's 1973 revenues.

The British unit will receive an annual reticitive \$6.5 million, which includes \$3 million in repayment of the subsidiary's debt, resulting in a gain of about \$2 million, the firm said. The remaining \$3.5 million will be paid quarterly.

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- HASP also does the same things as HASP and compounds the problem with multiple mainframes. It also does some utility jobs without calling OS at all. What about it?
- How many ways can a user get a job executed and beat the accounting system?
- I try to run a program [e.g., with an RR buffer] how much revenue per record do I risk if the system crashes?
- I have a TPS operation [IMS, CICS, AT&T, CRIE, RJE, batch created, etc.], which runs twelve hours a day. How much revenue producing data can I lose if the system crashes?
- Are the utilization statistics based on accurate and complete information?

- What about operator tape and disk mount activity? Responses to console messages? Can I charge for it? Is it even measured?
- How is system downtime accounted for? [There's only one quartered way]
- Does the "billing" system just calculate a job charge or does it generate a true invoice?

The DAS lists at \$10,800. It does everything listed above and more and is, we feel, the most thorough job utilization and costing software product in the field. We have over one hundred DAS packages installed, and we plan to have a great many more.

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# You'll be in good company at La Caravane Informatique.

The travelling computer users forum and exposition will tour Europe's second largest computer market starting next February in Lyon. And several excellent companies have already reserved one or more booths for the exposition. We'd like to welcome them.

The French Computer Caravan also has an excellent name as co-sponsor — *Zero-Un-Informatique*, a leading computer industry publisher of both a weekly newspaper and a monthly magazine. *Zero-Un-Informatique* will provide local identification and promotion, and will assure that *La Caravane Informatique* is responsive to the current needs of French computer users, with locally run forums, workshops and seminars.

If you're marketing in the rapidly growing French computer market or if you want to be — *La Caravane Informatique* is a selling tool you shouldn't pass up. Here's the schedule:

Dates	City	Sites
February 26-28	Lyon	Palais de Congrès
March 5-7	Marseille	Palais de Congrès
March 12-14	Bordeaux	Foire Internationale
March 19-21	Nantes	Foire de Exposition
March 26-28	Lille	Palais de Expositions
April 2-4	Nancy	Palais de Expositions

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## Burroughs, Univac Realign Europe Setup

With the European market becoming increasingly important to U.S. DP firms, Burroughs and Univac have realigned their European organizations.

Univac established a consolidated European Division, headquartered in London, which includes all marketing and services operations in Western Europe, the "Comecon" countries, the Middle East and South Africa.

The new unit consists of the Northern European Division and the Central European Division. John Butler, formerly vice-president and general manager of the Northern European Division, holds the same title for the new European Division.

The new organization was dictated by "the tremendous growth" which Univac has experienced during the past five years throughout Europe, according to Harry A. Steinberg, executive vice-president, worldwide sales and product development.

"Our situation has moved to the point where this new structure will provide better support for our expanding subsidiary functions, enhance our ability to respond sooner and more effectively to the needs of our customers and promote the continued growth of our business," he added.

Four new regional offices will be established, each under the direction of a vice-president and regional manager reporting to Butler.

### Data General Installs Its 500th UK System

COWES, ISLE OF WIGHT, England — Data General Ltd. has installed its 500th system at Plessey Radar, where it is part of a demonstration environmental monitoring system.

Region 1, headquartered in London, covers the UK, Yugoslavia, Turkey, Israel, Iran and South Africa.

Region 2, Rome, includes Italy, Belgium, France, Spain, Portugal and Greece.

Region 3, The Netherlands, West Germany, Switzerland, Austria, Poland, Russia, Hungary, Bulgaria and Czechoslovakia.

Region 4, Sweden, Denmark, Norway and Iceland.

A fifth marketing area based in London will be responsible for marketing operations in the Soviet Union.

At Burroughs, a restructuring

of the European operations has made the Burroughs International S.A. (Bisa) organization responsible for all of Burroughs marketing activities in Europe, Africa and the Near East, with Burroughs Machines Ltd. of Great Britain remaining a part of the organization.

"This change reflects Britain's entry into the Common Market and provides the company with a unified organizational structure in Europe with which to further support Burroughs products and services in this important European market for data processing systems and business products," Chairman Ray W. Macdonald said.

### Sanders Replaces 2260 Net at Esso

LONDON — Esso-Europe has replaced its 2260 data terminal from Sanders Data Systems, Ltd., for use in a national computerized management information system throughout the UK.

Three of the Sanders 810 systems, which control the terminals, have been installed at Esso Head Office, replacing an IBM 2360/2365 network. Other Orders & Installations

University of Bologna, Italy, has installed a 98K Honeywell 6030 computer, equipped with nine video terminals, three high-speed printers, card equipment and a front-end Datnet 355 processor.

In addition to handling administrative tasks, the system is being programmed for statistical research on the university population, automation of the student library and for "business" games.

Lahis Glastruk, Finnish glass-works, has ordered a real-time minicomputer system from Asca

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"This change reflects Britain's entry into the Common Market and provides the company with a unified organizational structure in Europe with which to further support Burroughs products and services in this important European market for data processing systems and business products," Chairman Ray W. Macdonald said.

Asian Computer Services, Republic of Singapore, has ordered the AR-70 Computerized Accounts Receivable data service from Computer Systems & Education Corp.

Foreign Orders & Installations

South China Morning Post, Hong Kong, has ordered Chinese language phototypesetting machines from Photon, Inc.

WSOY, Finnish publishing house, has ordered a Univac 90/90 system for handling typesetting using the Linco IV software program and for invoicing, inventory and production control using the Univac IMS/90 package.

E.T. Marwick, Mills, Ltd., England, has ordered a Honeywell Model 2620 computer to process customer orders.

## The Computer Caravan welcomes:

### OMNITEC CORPORATION

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as an exhibitor in The Spring 1974 Caravan.  
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Model 3345R with dial-up set and complete maintenance service for \$77 per month.



### RCA opens new line of Teletype\*

Now — lease Teletype equipment from RCA for just \$39 per month (send/receive model 33K5R) including maintenance. With dial-up set, only \$84 a day more!

- Prompt installation and maintenance services by RCA technicians based in over 130 cities.
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• ATLANTA, GA. 30318, 1778 Marietta Blvd., N.E., Bldg. 100, Phone: (404) 955-2043

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• CHICAGO, ILL. 60607, 783 North Dearborn Street, Bldg. 100, Phone: (312) 525-7550

• DALLAS, TEXAS 75207, 2711 Irving Blvd., Phone: (214) 917-9770

• LOS ANGELES, CALIF. 90001, 1000 South Beach Street, Phone: (213) 588-3088

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**RCA**

# Cubic is coming

## The Computer Caravan welcomes:

**RAYTHEON**

### as an exhibitor in The Spring 1974 Caravan.

Demonstrated will be its PTS-100 programmable terminal system. PTS-100 offers compatibility with IBM 2915, 4405, 2260, and 3270 and is programmable by the user for special applications. The PTS-100 provides user with economic and feature advantages which make it a must for consideration in any replacement or new terminal installation.

### What may we say about your company?

## The Computer Caravan/74

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**COMPUTERWORLD**

## SRI Scientists Say

## Lower Costs Spark DP Growth in Factory

MENLO PARK, Calif. — Plummeting costs of computers and memories are sparking the rapid growth of data processing in production, according to an article in *Investments in Tomorrow*, published by Stanford Research Institute (SRI).

A mini-based control system that costs \$100,000 five years ago would cost about \$25,000 today, observed David Pennington, senior industrial economist at SRI.

By 1980, the price of such a system may have dropped to between \$5,000 and \$10,000, and computerized control systems will have penetrated further into a variety of industries, he said.

In a recent survey, managers said they intend to automate equipment monitoring and data collection at the same time they automate test and fabrication operations.

The reduced costs of memory will make it feasible to use higher level languages so that workers who may not be programmers can instruct the system to perform different jobs, the article said.

Currently, computer-based automation makes economic sense for the electronics manufacturing and assembly industries, according to a spokesman for the National Science Foundation.

The two-year project is de-

signed to develop easily programmable manipulating, visual sensing and inspection systems and find an integrated assembly and inspection system that incorporates materials handling, acquisition, assembly and inspection operations all easily programmable and potentially cost-effective, the article reported.

In addition, the manufacturer can consider changes in produc-

tion equipment because products frequently become obsolete, rather than waiting for his production equipment to wear out, Pennington said.

### Programs Under Contract

Scientists at SRI are developing both programs and hardware for a variety of programmable systems under contract to the National Science Foundation.

The two-year project is de-

signed to develop easily programmable manipulating, visual sensing and inspection systems and find an integrated assembly and inspection system that incorporates materials handling, acquisition, assembly and inspection operations all easily programmable and potentially cost-effective, the article reported.

Within two years, staff scientist Charles A. Rosen expects to have simplified the software so it can be used in a self-standing minicomputer-controlled system that would be cost-effective in the factory.

The use of computer automation "could eliminate many undesirable jobs," Rosen said, "and provide new man-machine relationships requiring more human intelligence and thus reflecting man's purpose and dignity."

Factory workers would be relieved of the relatively low-level jobs that machines could do, and could work on such tasks as programming the assembly, inspection and materials handling systems as well as repair and maintenance of the systems, the article said.

## 5 Vice-Presidents

J. O'Connell, vice-president and group executive, components group; Charles W. Peace Jr., vice-president and marketing director, eastern region; business machines group; Cam R. Stark, vice-president and president of Burroughs Corp.

They are Lloyd W. Cull, vice-president and group executive, computer systems group; Robert

## Executive Corner

International S.A., Fribourg, Switzerland

Irwin A. Rector was named vice-president and managing director of Burroughs Machines Ltd., Great Britain.

"The recent reorganization of our manufacturing and engineering activities places worldwide responsibility for the design, development and manufacture of related products within individual operating groups," Chairman Ray W. Macdonald commented.

The computer systems group operates six plants in the U.S. and one in Belgium.

The business machines group operates four plants in the U.S. and one each in Brazil, Mexico and the UK.

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POWER PANGS?

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## Unidata's First Aimed at 370/115, Inherits Features of 'Parents'

PARIS — Barely six months after CII, Siemens and Philips agreed to form Unidata, that firm has announced its first computer, the Unidata 7.720.

It is, according to industry sources, similar to the IBM 370/115 and aimed at the same market. The 7.720 is the first member of the 7000 Series which is expected to eventually consist of six or seven models.

The new computer has "inherited" features of some of its parents. Unidata, specifically, has Siemens DOS4004 with the addition of virtual memory; Philips

semiconductor technology and some CII peripherals.

The system can also use either CII or Philips object code.

The 7.720 has a dual memory — a central memory of 48K to 160K with MOS/LSI technology and a reprogrammable control memory which holds the system's microprogram (8K to 16K words or 48 bits).

The 7.720 offers three card readers ranging in speed from 300- to 1,000 char/min, as well as card punches and three types of printers ranging in speed from 200- to 1,200 line/min.

## ICL May Unveil Top of New Series

LONDON — ICL is expected to unveil two members of its New Range Series very shortly, according to an article in *The Financial Times*.

The units, purported to be the P3 and P4, will represent the top of the line. The P3 is thought to be big enough to compete with the IBM 370/115 and future enhancements, while the P3 will be in the 370/158 range.

### Communications Oriented

Both machines are highly communications-oriented and suitable for operation in multiprocessor configurations, according to reports.

Either the 2903, already introduced, or its immediate successor will be called the P1 or P0, the article continued.

The T versions of the 1902 through 1905 will be marketed in parallel with the 2903.

Plans for the 1903 were for the energy crisis called for production of 50,2903s a month by late spring, rising to 100 a month by 1975, when revenues would be in the neighborhood of \$219 million. The lease/sale ratio was set at 44 months.

Operating systems for the P3 and P4 are said to have been up and running for a year.



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A complete update on the status of the EDP marketplace today — and where it's going tomorrow.

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Our major one-day seminar for the U.S. is called the Industry Briefing Session. And it will include:

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- Worldwide market for computers — shipments, installed base and forecast
- Minicomputers — continued surge in 1974?
- EDP services and the autotransaction industry — status and future
- Governmental impact on the computer industry — threat to industry growth?

Special address by Dr. Herbert Grosch

Dr. Grosch, editorial director of *Computerworld*, former head of the National Bureau of Standards research program in computing technology, and a well-known author of "Grosch's Law," will give a luncheon talk on *Computing: The Next 10 Years*. He will describe the

possibilities in terms of hardware and software technology, but will also cover the probable changes in worldwide user acceptance of new techniques.

The year: INTERNATIONAL DAY

We'll add a second day to our 1974 Briefing Session — to give particular attention to the rapidly expanding international marketplace. The day will be divided into two parts:

European Computer Marketplace

This session will include:

- User spending in Germany, France and U.K.
- 1974 demand and spending trends
- Installed base by supplier, country and industry
- Data entry and terminals — status and trends

• The software industry in Europe

Japan's Computer Marketplace

Including valuable information on:

• Business environment in Japan — impact of energy crisis

• Analysis and forecast of market shares of U.S. suppliers and Japanese companies

• Minicomputer market

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• Governmental planning and EDP policy — liberalization of restrictions on externally produced EDP equipment.

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All attendees at IDC's International Day will receive a free trial subscription to either our *Europe Report* or our *Japan Report* — a \$35 or \$30 value.

Bonus:

*Your Own Briefing Session Data Book*

Whether you attend the Industry Briefing Session or International Day, you will receive a free copy of our comprehensive Data Book — a briefing session in itself, including all our slides and forecasts. There is a different data book for each day, full of the facts you want to keep (100 pages for the Industry Session)... a \$95 value FREE.

Special note to *Financial Analysts*:

We're setting aside a special day (Feb. 26) for you in New York. It will cover the material included in our *Industry Briefing Session*, but the discussion — and audience participation — will be aimed at investor interests. Join some of Wall

Street's best computer watchers at this seminar!

There's not much time to enroll, so act now!

Our New York Computer Industry Briefing Session is coming up very soon, and whether you want to attend the Industry Briefing Session Day or International Day or both, now's the time to make your arrangements. The cost will have all the details on time, place and cost. If computer marketing is your field, fill it out right now and you'll be sure of a place when the information starts flowing. You couldn't pick a more productive way to spend a day.

Registration fee includes Data Book and all conference materials. Cancellations before Feb. 15 are refundable. Hotel: Hilton Hotel, 100 Hudson St., New York, N.Y. 10013. Attn: Seminar Coordinator, by Feb. 22. Personnel may be substituted at no charge. Registration scheduled for:

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Attach additional names as required, specifying city and session.

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The seminars are the DATA BASE COMMITMENT—DATA BASE PACKAGE EVALUATION AND SELECTION AND THE ROLE OF THE DATA BASE ADMINISTRATOR.

These three stand-alone seminars are currently offered in three cities or all three depending on your requirements. Whatever you choose, everything you need for you in unambiguously clear and definitive terms.

### SUBJECTS COVERED:

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MAKING THE DECISION

The Data Base Approach—Yes or No

DATA BASE SYSTEMS

THE COST/BENEFIT MODEL

THE BASIC DATA

DATA BASE BENEFIT MODEL

THE STAFFING COMMITMENT

Job Descriptions

Training

DATA BASE PACKAGE EVALUATION

AND SELECTION

DATA BASE EVALUATION

The Evaluation Team

The Evaluation Process

DATA BASE SYSTEM PACKAGES

IMS, TOTAL, S2000, ADABAS

Technical Descriptions

Qualifying the Competition

MAKING THE SELECTION

Matching the Problem and the Package

A Package Selection Case Study

ROLE OF THE DATA BASE

ADMINISTRATOR

THE TECHNICAL ROLE

File Organization Issues

THE MANAGEMENT ROLE

Policy Making Responsibilities

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Physical Data Base Design Efficiency

Workshop—HD Data Base Design

Design Simulators—Performance

Workshop—Data Base Design Optimization

INTERFACING TECHNIQUES

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### INTERFACING TECHNIQUES

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### STRUCTURE VERIFICATION

### DATA BASE INTEGRATION PROBLEMS

### DATA BASE DESIGN OPTIMIZATION

### DESIGN SIMULATORS

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POSITION ANNOUNCEMENTS	POSITION ANNOUNCEMENTS	POSITION ANNOUNCEMENTS	POSITION ANNOUNCEMENTS
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## POSITION ANNOUNCEMENTS

## DIRECTOR OF COMPUTING CENTRE

Applications are invited for the position of Director of Computing Centre at the University of New Brunswick, effective July 1, 1974. The Computing Centre supports both the academic and administrative needs of the University and in addition serves as the central facility of the New Brunswick Economic Computer Network. The Computing Centre operates an IBM System 370/158 with RJE and APL interactive terminal facilities. The position requires appropriate professional and technical qualifications in the field of Computing Science or related discipline. Salary is commensurate with experience and education and is subject to negotiation. Applicants are invited to apply to:

Dr. D. G. T. Dickey  
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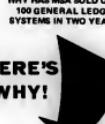
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